

Carey stone

CORRUGATED ASBESTOS-CEMENT

ROOFING AND SIDING

*architectural,
engineering
and
data manual*

MANUAL No. 60

THE PHILIP CAREY MFG. CO. • CINCINNATI 15, OHIO



Revised Feb 1, 1962

THIS IS YOUR

4.2 Carey stone CORRUGATED

ASBESTOS-CEMENT MANUAL

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GENERAL INFORMATION AND USES

Careystone Corrugated Asbestos-Cement Roofing and Siding is manufactured by The Philip Carey Mfg. Company at Cincinnati, (Lockland) Ohio on the most modern equipment available. The sheet is composed entirely of Portland Cement and asbestos fibres, and has outstanding qualities not found in any other one type of roofing and siding material. Portland Cement and asbestos fibre are two of the most durable materials known to mankind.

The asbestos fibres are the reinforcing members in the Portland Cement and are comparable to steel reinforcing rods in reinforced concrete. Asbestos Fibre is ideal for this purpose since it is not affected by the elements; does not rust or deteriorate, and cannot burn.

The Carey manufacturing process combines the tough asbestos fibres with Portland Cement, hydrates this mixture, and forms it into a corrugated sheet in its full thickness in one operation. It is then pressed under enormous hydraulic pressure to make it a homogeneous, monolithic sheet. After an aging period, the materials are edge trimmed and cut to required lengths. All edges are smooth and true.

Careystone Corrugated offers the user the advantages of being fire resistant; rot proof; rodent proof; unaffected by the elements; natural gray white color; no painting required; retains its light appearance; highly resistant to acid and alkali fumes; economical, quick and easy erection; and requires no maintenance. Another outstanding feature not found in most materials is the characteristic action of Portland Cement which causes the sheet to become harder and stronger with age.

That is why Careystone Corrugated applied over 30 years ago still gives 100% satisfaction on all type of buildings.

Careystone Corrugated is most economical to use since it requires only a skeleton type construction of steel or wood with roof purlins on not more than 4'-6" centers and wall girts on not more than 5'-6" centers. Careystone is a comparatively light weight material (approx. 510 to 520 lb. per square in place) does not require extra heavy framing. The foundation does not have to be of as heavy design as masonry construction, since steel or wood framing and Careystone are only a fraction of the weight of masonry construction.

SPECIFICATIONS

Careystone 4.2 Corrugated Asbestos - Cement Sheets surpass the minimum requirements of all standard published specifications, namely:

Federal Specification SS-B-750b-Type A

U. S. Navy (Bureau of Yards & Docks) No. 7Yh.

A. S. T. M. C221-61-Type A

American Railway Eng. Ass'n. No. 6-10-2

Underwriters' Laboratories, Inc.

WARRANTY

We warrant our materials to be of good quality and will replace material proved defective. This warranty is in lieu of all others express or implied and may not be extended by representatives, written sales information or drawings. While we recommend uses for our material based on tests believed reliable, we in no way guarantee particular methods of use or application or performance under special conditions.

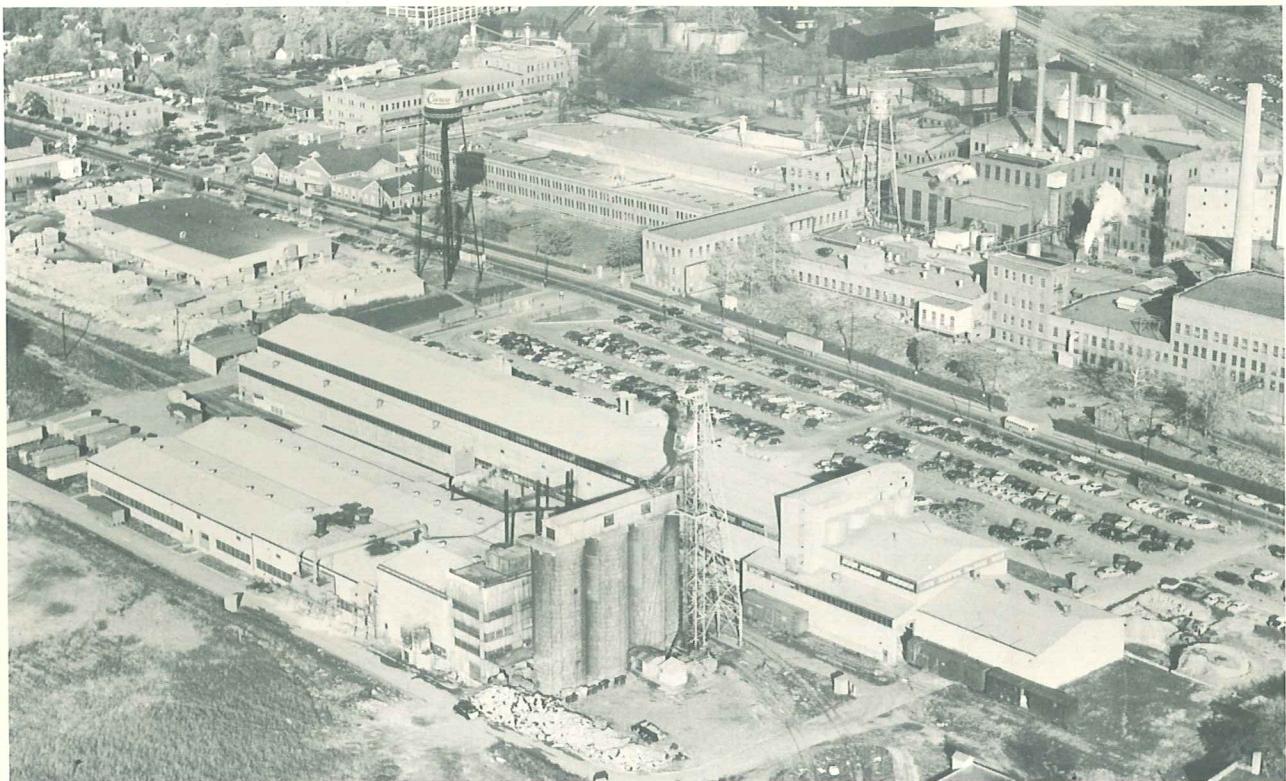


Photo of the Philip Carey Mfg. Co. Plant at Cincinnati, Ohio where Careystone is produced.

ESTIMATING SERVICE

The Philip Carey Mfg. Company will gladly figure the price of the required Careystone Corrugated sheets and accessories for any building and quote an approximate cost, F.O.B. Lockland, freight allowed to destination, on the material requirements. Specifications and the architectural drawings, (and if available, the steel elevation and roof plan drawings) should be sent with the inquiry. When the order is placed, we will promptly forward a complete Careystone layout for each building or area required. This layout contains an erection diagram showing the exact sizes of sheets, types and sizes of fasteners, corner rolls, ridge rolls, etc. at their respective locations. It also contains erection details, notes and a complete bill of materials. This layout is developed by our engineers from the steel elevation and roof plan drawings which must be forwarded with the order, if they were not submitted to us with the request for quotation. Both the architectural, steel elevation, and roof plan drawings showing all girt and purlin positions and spacings are required to make the layout.

The layout is submitted for the approval of your engineers, insurance company and/or your applicator. Fabrication and shipment is not made until we receive a copy of this layout approved as is or with corrections. This assures the materials being shipped and used to the satisfaction of all concerned. Carey

at all times maintains a large stock of all stock lengths of Careystone sheets and accessories.

All inquiries and drawings should be sent to the nearest district office of the Philip Carey Mfg. Co. Find the address of nearest Carey office on page 84.

ENGINEERING SERVICE

An efficient staff of engineers is maintained by the Philip Carey Mfg. Company and their services are always at your disposal. Their wide experience covers the recommendations and application of Careystone Corrugated Asbestos-Cement Roofing and Siding on thousands of factories, railroad buildings, airplane hangars, warehouses, power plants, foundries, chemical plants - in fact, all conceivable kinds of industrial structures, commercial buildings and homes.

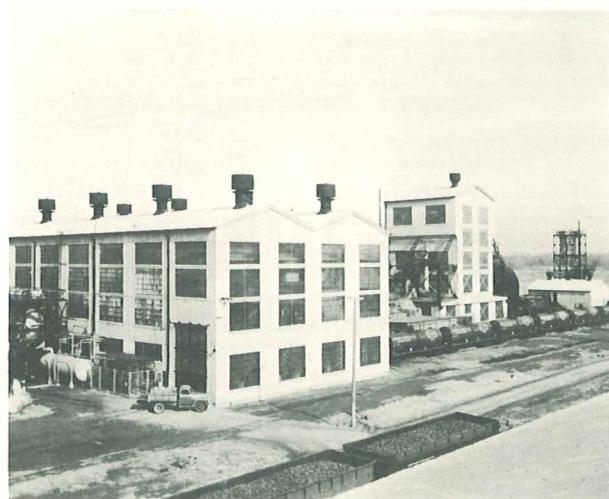
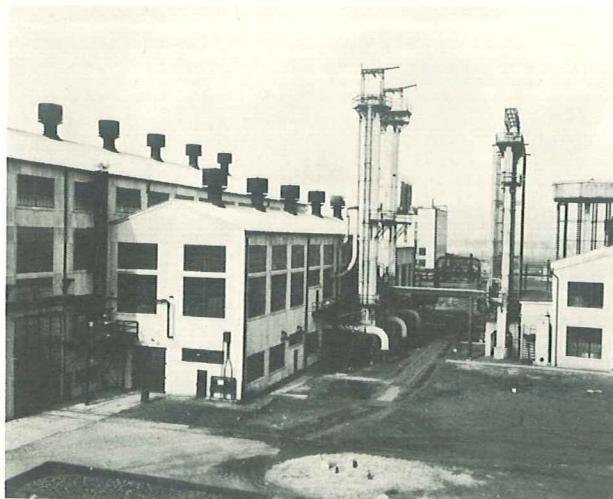
This service includes helpful suggestions to design the construction most economical and suitable for the use of Careystone, to make helpful suggestions on application, to make field estimates where plans are not available, and to be of assistance in any way desired for the use and application of Careystone Corrugated. Wire or call the nearest district office of the Philip Carey Mfg. Company. See list on page 84.

INDUSTRIAL BUILDINGS

Careystone Corrugated Asbestos-Cement Roofing & Siding is designed for use on all types of industrial buildings - performs satisfactorily under all conditions from extreme northern clime to the tropics in clear air or chemical filled air, - salt air has no effect on it. A freezing rain does not affect it. A partial list of the types of buildings on which Careystone has been used is as follows.

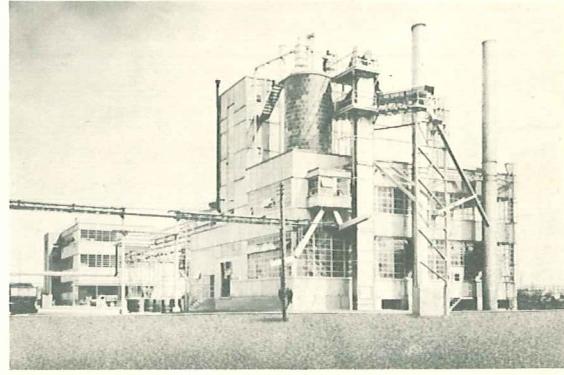
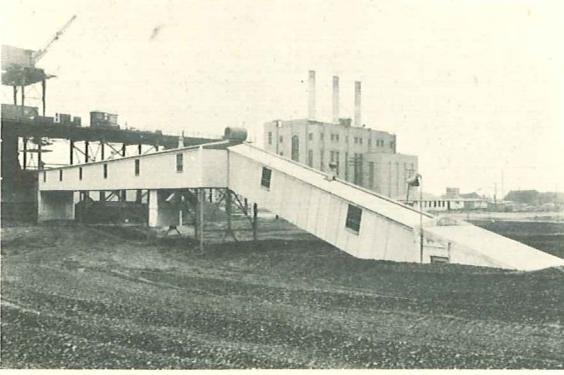
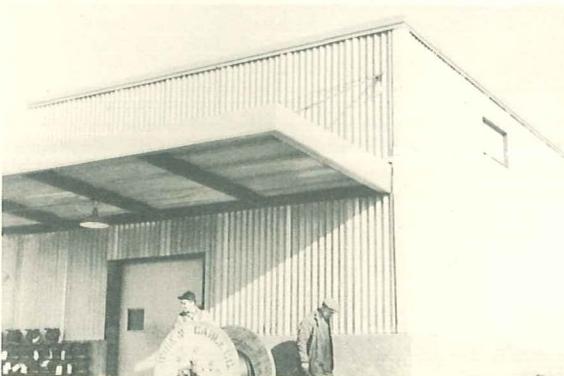
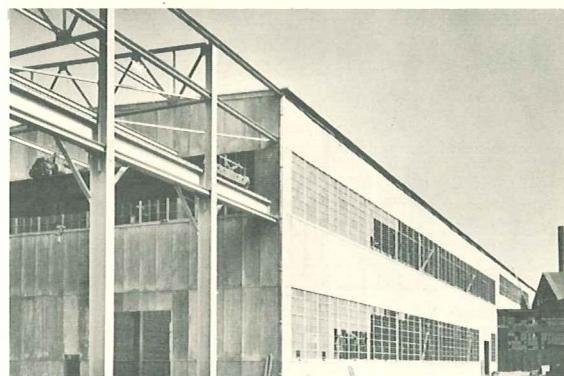
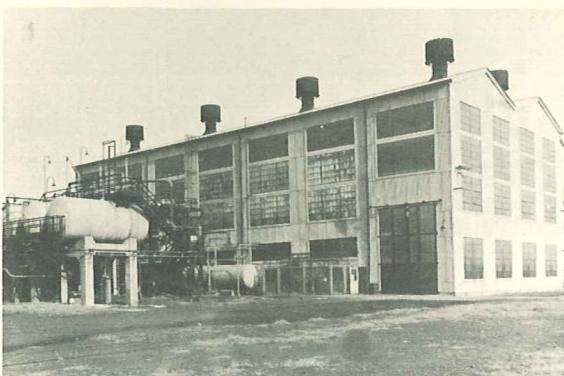
Manufacturing Buildings
 Power Houses
 Chemical Buildings
 Fertilizer Buildings
 Refinery Buildings
 Brick Plants
 Foundry Buildings
 Storage Sheds
 Kiln Buildings
 Storage Buildings
 Mine Buildings
 Process Buildings
 Loading Docks
 Canopies
 Round Houses
 Car Barns
 Gas Houses
 Maintenance Buildings
 Shelter Buildings
 Electrical Sub-Station Bldgs.
 Scale Buildings

Quenching Towers
 Assembly Plants
 Warehouses
 Shop Buildings
 Fan Houses
 Mill Buildings
 Boiler Houses
 Compression Bldgs.
 Distillery Buildings
 Salt Mine Buildings
 Train Sheds
 Conveyor Bridges
 Head Houses
 Freight Houses
 Dock Buildings
 Pump Houses
 Hangar Buildings
 Transformer Houses
 Grain Storage Buildings
 Cooling Towers
 Derrick Enclosures



INDUSTRIAL BUILDINGS

PHOTOS OF TYPICAL CAREYSTONE BUILDINGS



COMMERCIAL AND DECORATIVE USES

Careystone Corrugated Asbestos-Cement was originally used for industrial buildings but in recent years it has found a new field as a decorative material. Architects are specifying it for commercial construction as the deep corrugations offer beautiful shadow effects.

Store fronts

Backing for indirect lighted letters on signs

Underside of marquees

Horizontal running bands of corrugated sheets on modernistic buildings of all types

Outside encasement of wood burning fireplaces in homes

Playroom walls

Radio studio walls for acoustical advantages

Fences

Roofs on residences

Under overhanging soffits

As decks for built-up roofs

Partitions

Fire stops

Bases for bottled gas

Rat barriers

Low temperature heat baffles

Bottoms of green house benches (using flat Careystone Board, or Careystone Corrugated for the sides)

Facing for counters

Backing board for appliance show rooms (Careystone painted bright colors for this use to make white units in front of them stand out)

Curtains for indirect lighting

Enclosures of rides & buildings in amusement parks because of its fire resistance

For roofing and siding of camps, cottages and lodges

Lining walls in hotel lobbies and offices

Used horizontally in cafes, taverns, and waiting rooms as a wainscoting

Bath house roofs and sidewalls

Car and bus shelters

Barns and other farm units

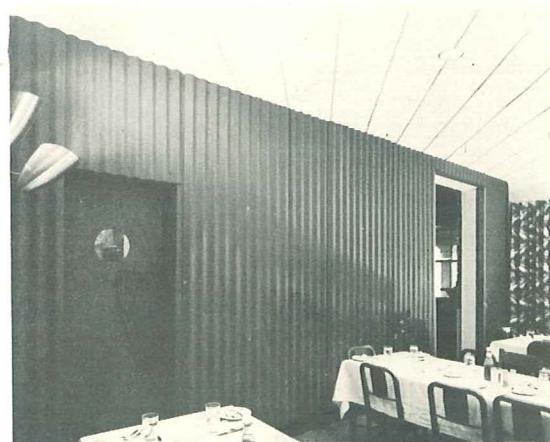
Garden edging

Hoods for over paper machines and pickling tanks

Forms for concrete slabs - sheets left in place for decorative underside

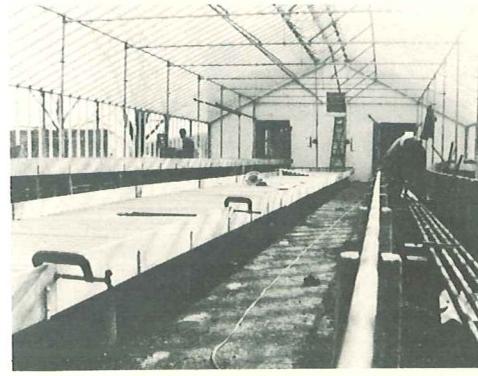
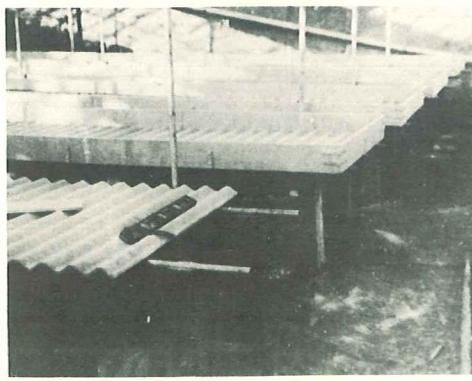
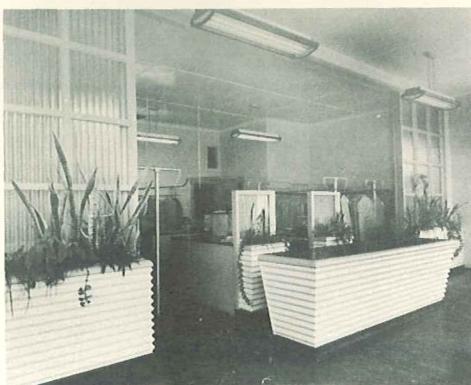
In movie houses, school auditoriums, and theatres around the sides and over the stage

PHOTOS OF TYPICAL COMMERCIAL & DECORATIVE USES



COMMERCIAL & DECORATIVE USES

PHOTOS OF TYPICAL COMMERCIAL & DECORATIVE USES

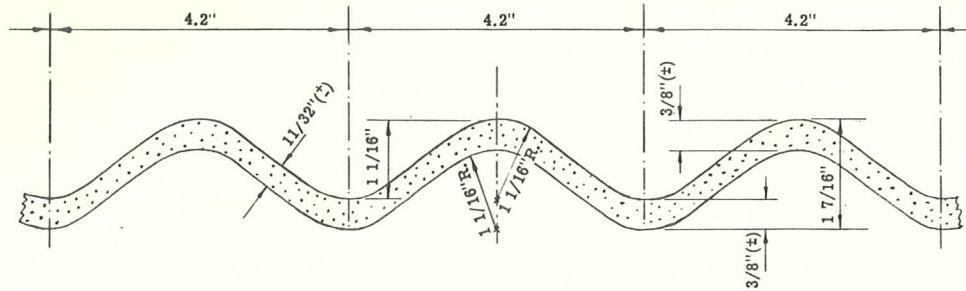


SHEET DATA

Careystone 4.2 Corrugated sheets have the following properties:

Material	- Portland Cement and Asbestos Fibre		
Over-all Depth	- 1-7/16"		
Thickness	- Approximately 3/8"		
Weight, Bulk	- Approximately 4 lb. per Sq. Ft.		
Width of Sheet	- 42" - Having 10 corrugations each 4.2"		
Standard Stock Lengths -			

6"	3'-6"	6'-6"	9'-6"
1'-0"	4'-0"	7'-0"	10'-0"
1'-6"	4'-6"	7'-6"	10'-6"
2'-0"	5'-0"	8'-0"	11'-0"
2'-6"	5'-6"	8'-6"	11'-6"
3'-0"	6'-0"	9'-0"	12'-0"



CONTOUR OF 4.2 CAREYSTONE

MAXIMUM PURLIN AND GIRT SPANS

Careystone Corrugated Sheets are recommended for roofing spans (Purlin spacings) up to 4'-6" and siding spans (Girt spacings) up to 5'-6". If roofing or siding spans exceed these figures, we suggest that you communicate with our Engineering Department.

If the structural design of a building is such that there could be a roof area that would cause an accumulation of snow and ice on it, which would result in excessive loads, it is recommended that the purlin spans be reduced to 4'-3" (or even less in extreme cases) and that the pitch of the roof be increased to not less than 4" in 12".

ROOF PITCH

Careystone Corrugated is recommended for use on roofs having pitches of 3" or more per foot. Black putty must be used in all side and end laps of roofing sheets regardless of the pitch of the roof.

WEIGHT PER SQUARE FOOT

Careystone Corrugated sheets weigh approximately 4 lb. per sq. ft. in bulk. Sheets crated for domestic shipment weigh approximately 4.5 lb. per sq. ft. See table of weights on pages 80-81 and shipping information on page 61.

WEIGHT PER NET SQUARE IN PLACE

Approximate weight of Careystone Corrugated in place including accessories is about 510 to 520 lb. per square of building area.

NET AND GROSS SQUARES OF CAREYSTONE CORRUGATED

Net area is the actual area of building area to be covered. A net square is 100 Sq. Ft. The actual footage (gross area) of a net square of 4.2 corrugated in place with one corrugation side laps and 6" end laps varies from about 112 to 124 sq. ft. depending on length of sheets used. An average gross figure is approximately 118 sq. ft. of corrugated material per net square of building area.

COLORS

Careystone Corrugated sheets are a natural cement gray. The sheets bleach out to a very pleasing gray white color after the materials have been in place for several months.

Careystone Corrugated can be furnished in special colors such as red, green, and brown, if desired, when sizable quantities of any one color are required.

CURVED SHEETS

Curved Careystone Corrugated sheets can be manufactured curved for special orders, either along the length or across the sheets as required. Since there are limitations to the manufacture of curved sheets, we suggest you consult our Engineering Department prior to specifying or designing a building using curved Careystone Corrugated sheets.

PAINTING OF SHEETS

Careystone Corrugated Asbestos-Cement Roofing and Siding requires no painting. Its pleasing gray-white color is permanent for it is the natural color of the component materials. Any dirt that may fall on the roof will collect in the vales of the corrugations and then will usually be washed out by the next rain.

Careystone can be painted for decorative purposes and as a background for painting company names or identifications on buildings. All of the leading paint manufacturers will be glad to recommend, on request, the paint to be used and method of application to give the longest and best service on an asbestos-cement sheet.

SHEET LENGTHS FOR A JOB

Careystone sheets are furnished in lengths as required for the area to be covered. Lengths furnished are governed by the spacing and position of the supporting members. Type of fastener used also must be considered when calculating sheet lengths.

When application calls for end laps, sheets must overlap each other 6" and the laps must fall over supporting members. Long sheets should be used to span several supporting members. This expedites the erection, saves materials by eliminating extra end laps, and offers a more attractive appearance. See paragraph entitled, "Type of Fastener Governs End Lap Position", on Page 20.

EXPANSION JOINTS IN SHEETS

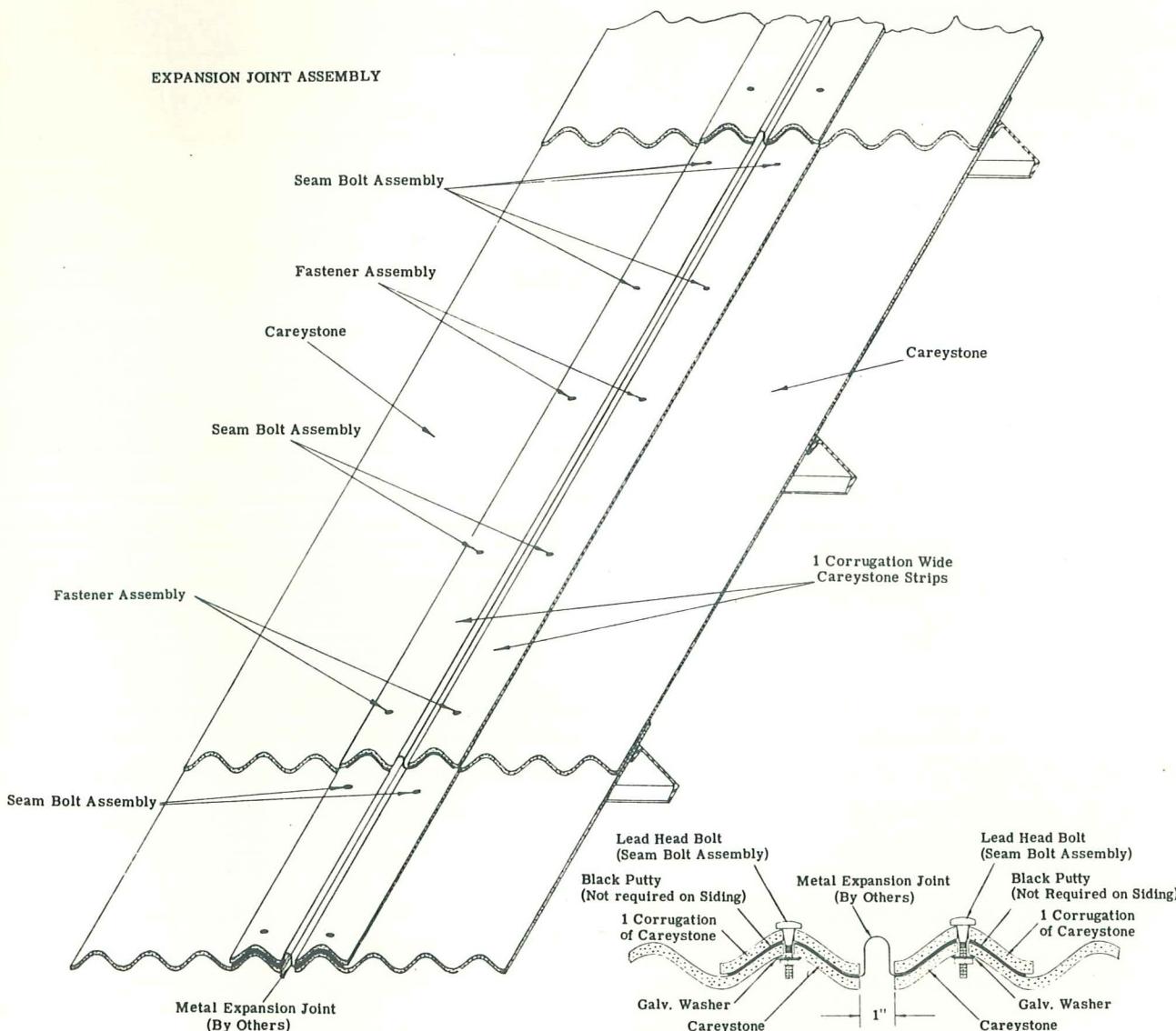
Expansion joints of metal (furnished by others) must be used with Careystone Corrugated in roofing and siding directly over the expansion joints that are in the supporting structural steel, regardless of the type of fastener used.

With the bolt and clip methods of fastening there should be no unbroken horizontal areas of Careystone longer than 200 ft. Buildings subjected to high interior temperatures, variable moisture and humidity conditions, etc. should have expansion joints on approximately

150 ft. centers, but in all cases expansion joints must also be used over the expansion joints in the structure if structural expansion joints are present.

When the Nelweld System or "Topseal" (Self Tapping Screw) System of fastening is used, intermediate expansion joints between the expansion joints in the structural steel are omitted. Expansion joints in the Careystone roofing and siding must be used over the expansion joints in the structural steel.

EXPANSION JOINT ASSEMBLY



EXPANSION JOINT IN PLACE

SECTION THROUGH EXPANSION JOINT

RIDGE ROLL

The standard ridge roll used with Careystone 4.2 Corrugated Asbestos-Cement Sheets is the 1/2 round type. It is manufactured of asbestos-cement and therefore matches the color and performance of the sheets. This ridge roll is furnished in 8'-0" length and has an 8" outside diameter. The ends of these 8'-0" sections are butted and a ridge roll batten 6" long is used under the butting ends. This batten is not seen from the outside of the

building as it fits inside the ridge roll and is designed to nest perfectly.

With 1/2 round ridge roll, F-3 strips must be used.

The 1/2 Round Ridge Roll assembly consists of the ridge roll, ridge roll batten, bolts, toggles, and F-3 strips.

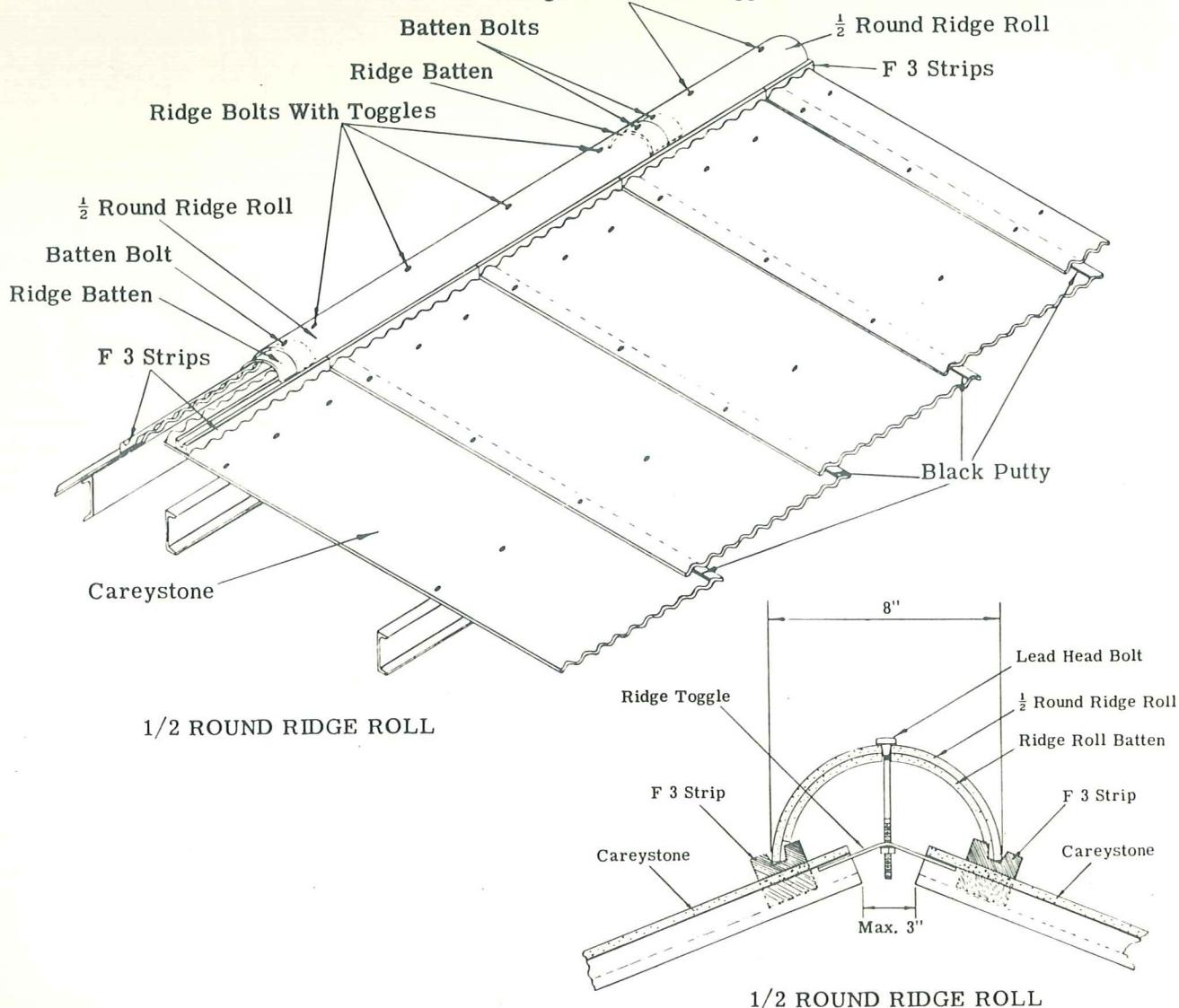
Accessory requirements for each 8'-0" section of half round ridge roll are as follows:

- 1 pc. ridge roll batten
- 4 pcs. galv. ridge toggles
- 4 pcs. 5" long bolt assemblies
- 2 pcs. 1-1/2" long bolt assemblies
- 5-1/4 pcs. F-3 strips

For the number of pieces of 8'-0" half round ridge roll required for the length to be covered, see table on page 78-79.

See Ridge Roll End Flashing Detail on Page 69.

Ridge Bolts With Toggles



RIDGE ROLL (Continued)

When there is a common structural ridge member, such as an I beam, making it impossible to put the toggle and nut on the bolt from underneath and also with the use of the Nel-weld method of applying sheets, which is all done from the top side, 1/2 Round Ridge Roll can be installed entirely from the top side in the following manner.

The toggle bolt holes are drilled in the ridge prior to application. The toggles are placed on 1/4" x 6" Oven Head Bolts placing the toggle next to the bolt head with the toggle wings down. These bolts are then placed through the holes in the 1/2 Round Ridge Roll having a lead cup washer put on the bolt first then a galvanized washer, then the nut. The nut is only drawn down far enough to prevent the assembly from falling out. The type F-3 strips are then laid in place on the roof and the toggles are placed in line with the ridge roll so they will drop through the opening between the roof sheets. The bolts are then turned 90° which will put the toggles in their proper positions. The nuts are then run up on the bolts and the extending threads are then cut off. The exposed assembly is then covered with gray putty.

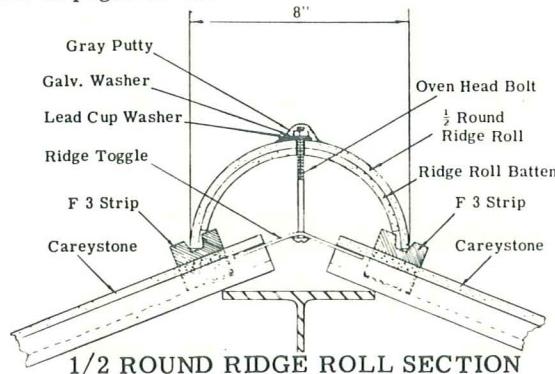
When this type of ridge application must be used, the ridge batten is bolted to one end of the ridge roll prior to application. The extending end of the batten is given several beads of gray putty running parallel to each other across the batten. The next section of ridge is set into this putty and the next toggle is placed very close to the

batten since no batten bolt can be installed through the puttied side of the batten.

When 1/2 Round Ridge is to be used in this manner, the accessory requirements for each 8'-0" section are as follows:

1 pc. ridge roll batten	1 pc. 1-1/2" long bolt
4 pcs. galv. ridge toggles	assemblies
4 pcs. 6" long bolt	5-1/4 pcs. F-3 strips
	assemblies

The number of pieces of 8'-0" half round ridge roll required for the length to be covered, are found in the table on pages 78-79.

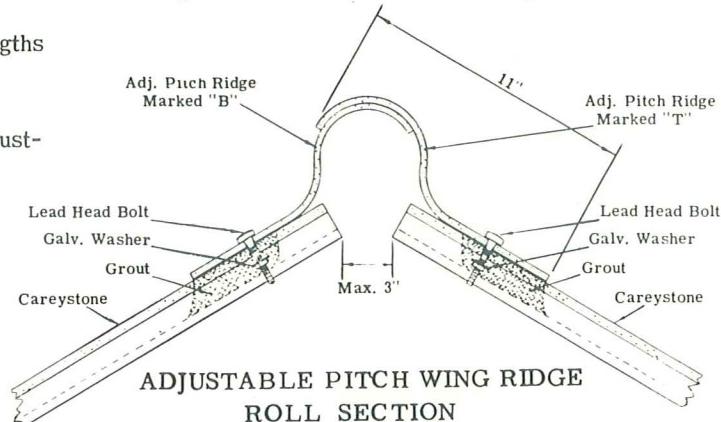


ADJUSTABLE PITCH WING RIDGE ROLL

On hips where the Careystone sheets do not meet the ridge at right angles, it is necessary to use adjustable pitch type asbestos-cement ridge roll with asbestos-cement grout. The 1/2 round ridge cannot be used without F-3 strips and F-3 strips are not manufactured for use diagonal to the corrugations.

Adjustable pitch ridge roll is furnished in 4'-0" lengths

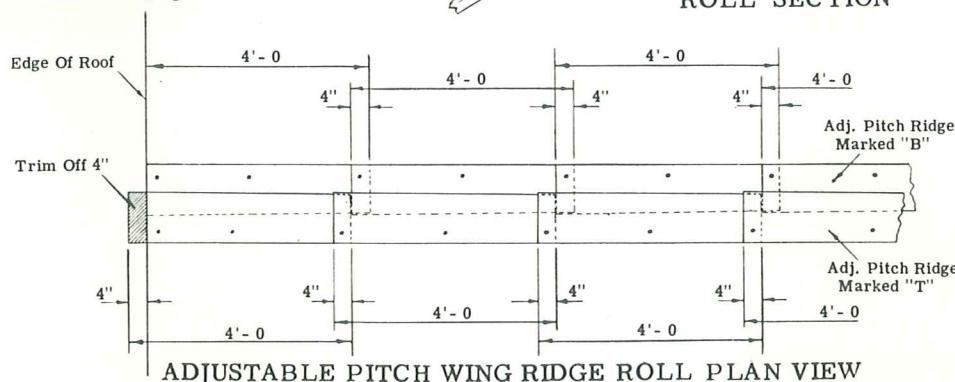
and in double sections. These sections are self-adjustable to the pitch of any roof. Sections nest into one another and the top piece is marked "T" and the bottom piece marked "B". Sections are end lapped 4" and offset 4" with each other. Asbestos-cement grout is used under the wings to fill the voids of the corrugated sheet.



Accessory requirements for one double section of adjustable pitch ridge roll are as follows:

- 4 pcs. 3" long bolt assemblies
- 4 lbs. asbestos-cement grout
- Plus 2 extra 3" long bolt assemblies for each area to be covered.

The number of double sections of 4'-0" adjustable pitch ridge roll required for length to be covered, are found in the table on pages 78-79.



OUTSIDE CORNER ROLL

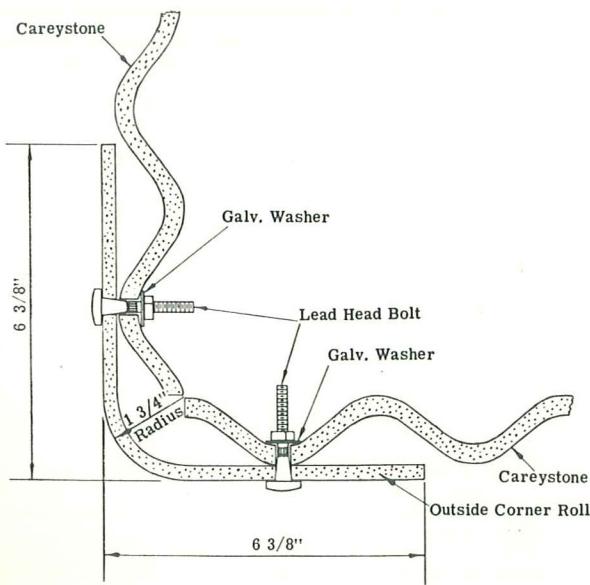
Careystone Asbestos-Cement Outside Corner Roll is manufactured of Asbestos-cement and therefore matches the color and performance of the sheets.

Outside Corner Rolls are designed for use on outside corners only. Outside Corner Roll has a 90° angle and the wings are 6-3/8" wide per side. Standard length is 8'-0". On outside corner roll one end has a 4" long area offset the thickness of the corner roll which overlaps the preceding section when applied.

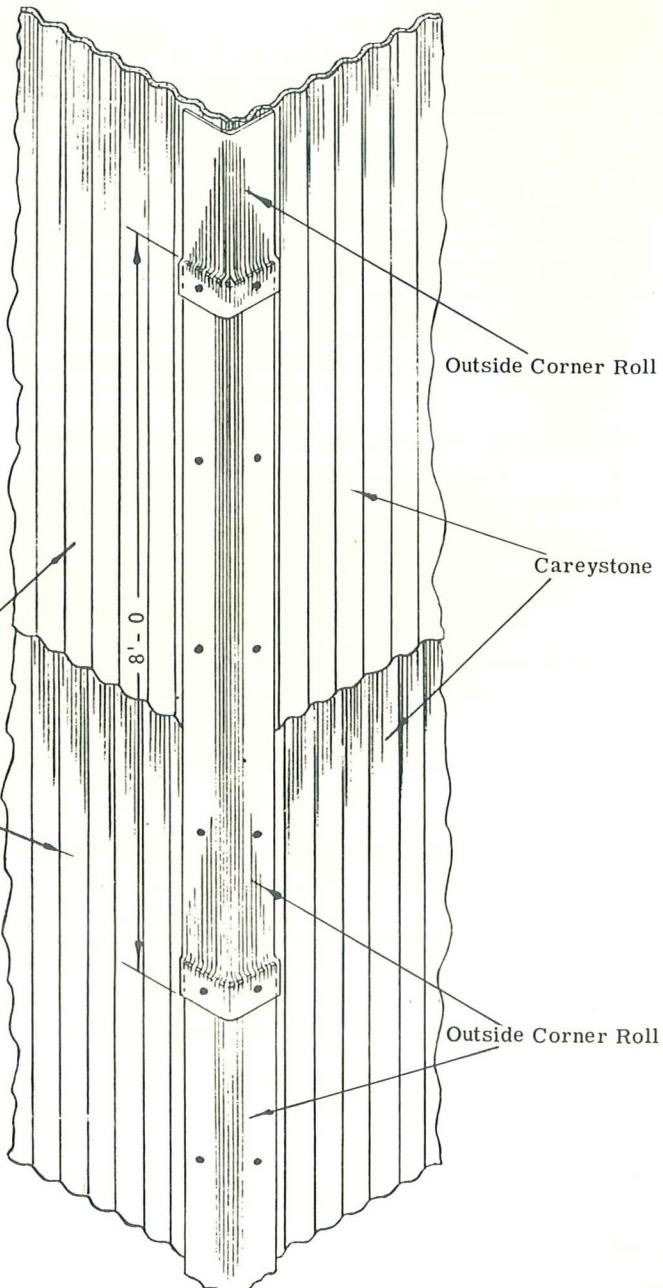
Accessory requirements for each 8'-0" section of Outside Corner Roll are as follows:

- 8 pcs. 3" bolt assemblies
- Plus 2 extra 3" bolt assemblies
- for each area to be covered.

The number of pieces of 8'-0" Outside Corner Roll required for the height (or length when used as a rake trim) to be covered, are found in the table on pages 78-79.



OUTSIDE CORNER ROLL SECTION



OUTSIDE CORNER ROLL IN PLACE

INSIDE CORNER ROLL

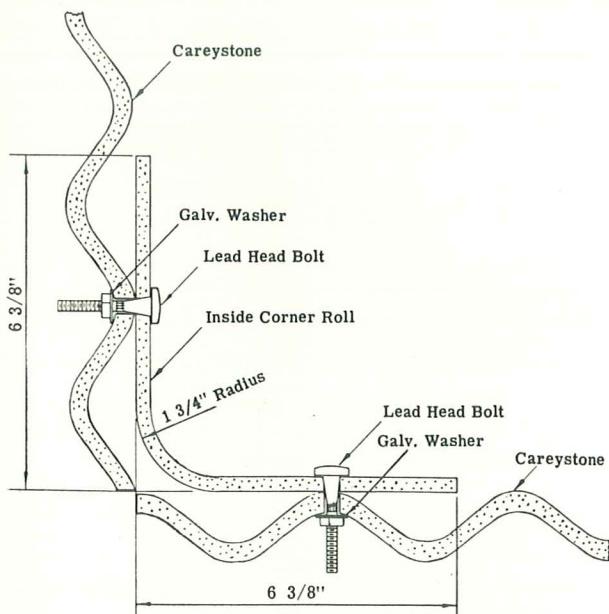
Careystone Asbestos-Cement Inside Corner Roll is manufactured of Asbestos-cement and therefore matches the color and performance of the sheets.

Inside Corner Rolls are designed for use on inside corners only. Inside Corner Roll has a 90° angle and the wings are 6 3/8" wide per side. Standard length is 8'-0". On Inside Corner Roll one end has a 4" long area offset the thickness of the corner roll which overlaps the preceding section when applied.

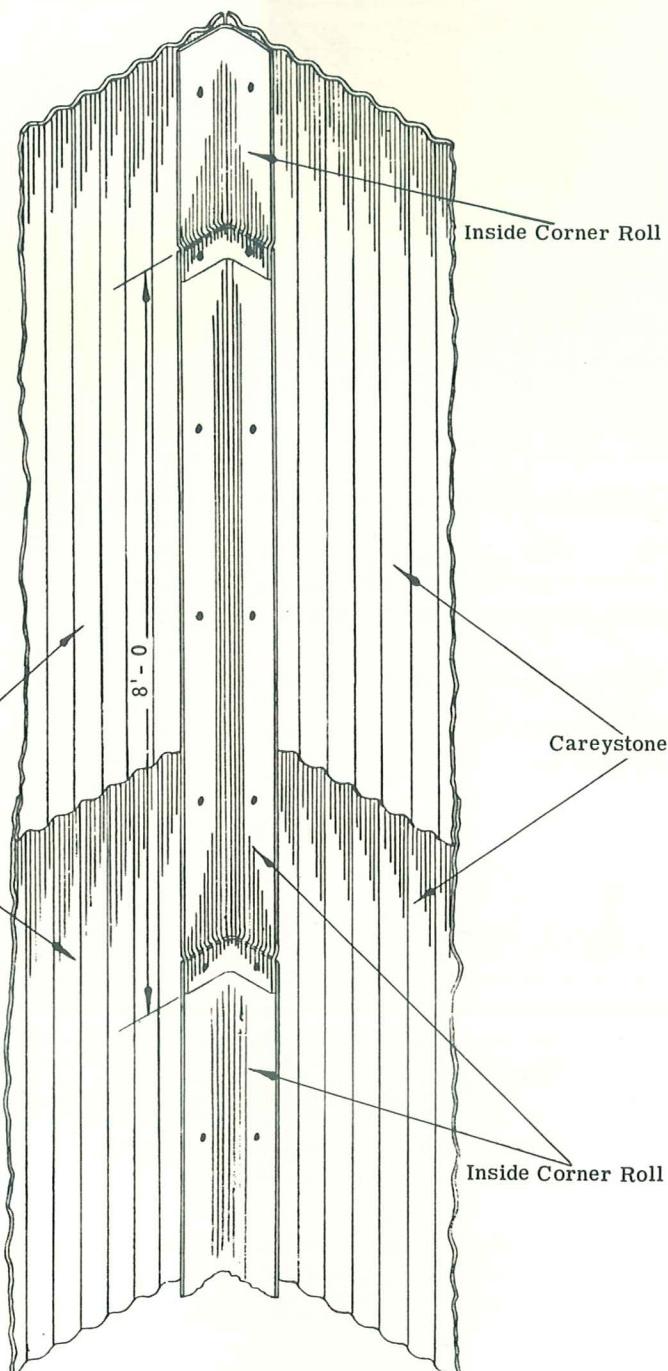
Accessory requirement for each 8'-0" section of Inside Corner Roll are as follows:

8 pcs. 3" bolt assemblies
Plus 2 extra 3" bolt assemblies
for each area to be covered.

The number of pieces of 8'-0" Inside Corner Roll required for the height (or length when used as rake or eave-trim) to be covered, are found in the table on pages 78-79.



INSIDE CORNER ROLL SECTION



INSIDE CORNER ROLL IN PLACE

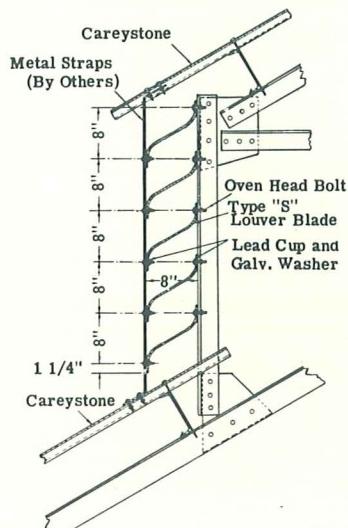
LOUVER BLADES

Carey can furnish two types of louver blades. The standard louver blade is known as type "S". This is a formed blade scientifically designed to offer maximum ventilation and free air passage, yet provides utmost weather protection for the inside of the building.

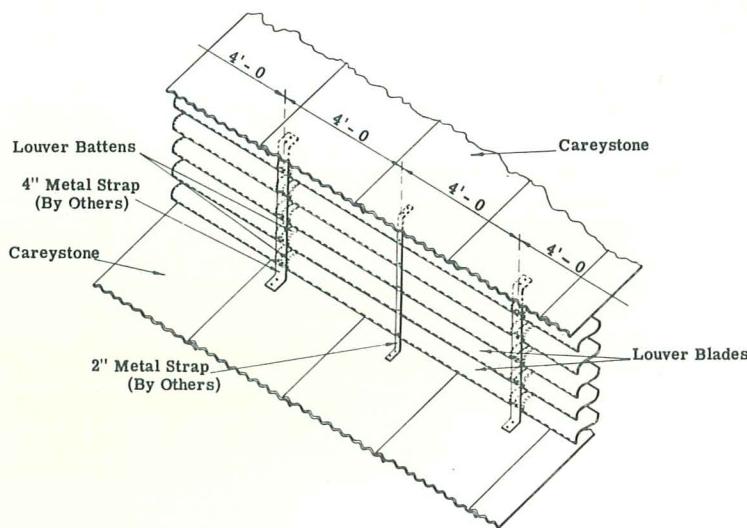
Type "S" blades are furnished in 8'-0" lengths. Louver

blade battens are 4" wide for use under butt joints of louver blades to assure water tightness.

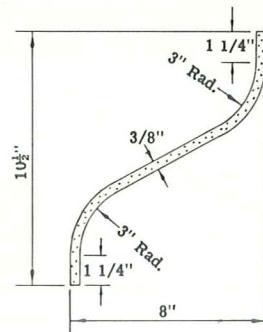
Type "S" blades are designed for the metal supports (by others) to be located with 8" clearance into which the blades fit. The supports should be on 4'-0" centers. Bolt holes are on 8" centers.



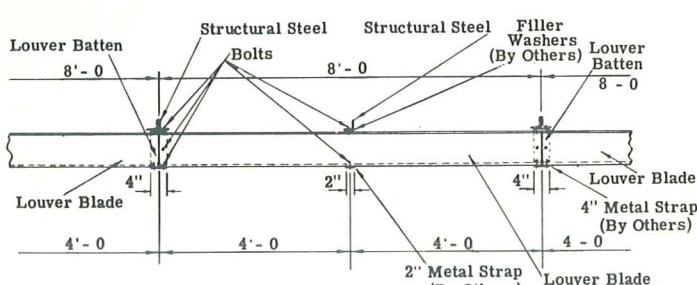
SECTION THROUGH MONITOR
TYPE "S" LOUVER BLADES



MONITOR LOUVER ASSEMBLY

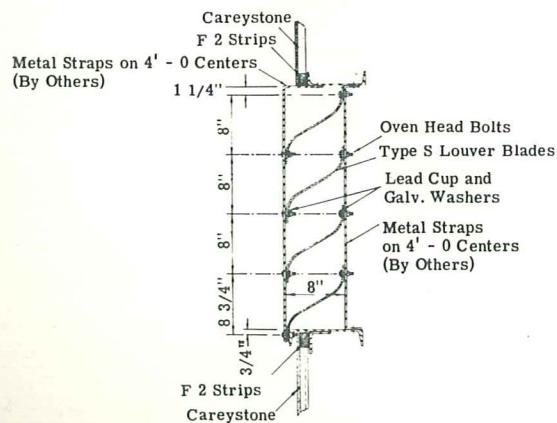


DETAIL OF TYPE "S" BLADE

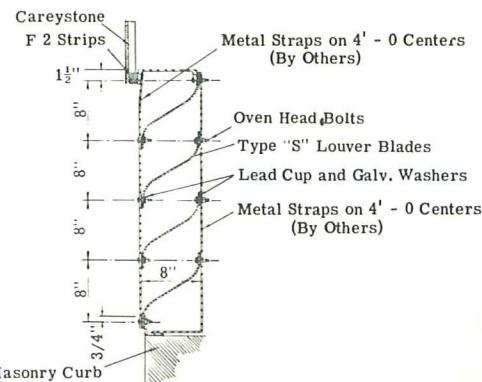


TOP VIEW OF LOUVER ASSEMBLY

Louver blades can also be used in side wall elevations where spot areas or continuous areas of louvers may be desired. Constructions similar to those shown below may be used.



SPOT OR CONTINUOUS LOUVER
IN CAREYSTONE WALL

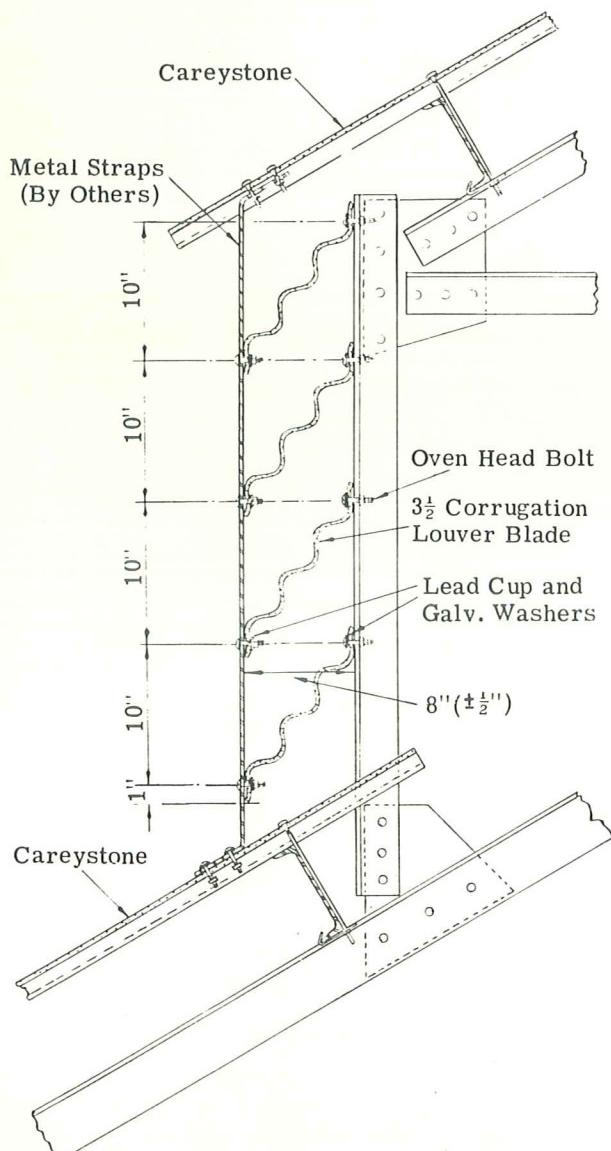


SPOT OR CONTINUOUS LOUVER AT CURB

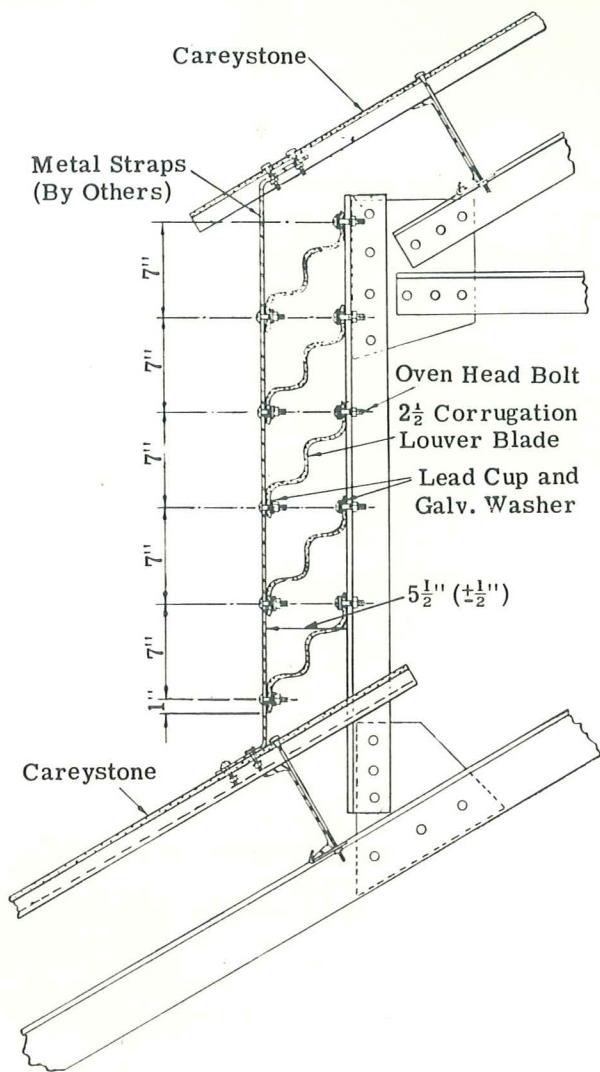
LOUVER BLADES (Continued)

Louver blades can also be furnished from the factory or cut in the field from 4.2 corrugated sheets.

The 2-1/2 corrugation 4.2 louver blade is available up to 12'-0" in length. The metal supports (by others) are located with 5-1/2" ($\pm 1/2"$) clearance and on 4'-0" centers. Bolt holes are on 7" centers.



SECTION THROUGH MONITOR
3½ CORRUGATION LOUVER BLADES



SECTION THROUGH MONITOR
2½ CORRUGATION LOUVER BLADES

The 3-1/2 corrugation 4.2 louver blade is available up to 12'-0" in length. The metal supports (by others) are located with 8" ($\pm 1/2"$) clearance and on 4'-0" centers. Bolt holes are on 10" centers.

ENCLOSURE STRIPS

Enclosure strips are often identified as sealing strips or filler strips. Carey manufactures these strips of an asphaltic composition and they are produced in

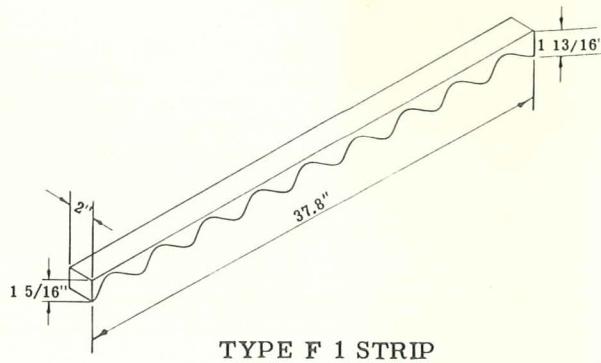
Strips identified as F1 type are for use under flashings on top of 4.2 corrugated sheets which have been applied with one corrugation side laps. The strips are tapered so that when installed on the sheets the top surface of all the strips are on the same plane. The strips are 37.8" long.

Strips identified as F2 type are for use at eaves, sash and door heads, curb lines, etc. under 4.2 corrugated sheets which are applied with one corrugation side laps. The strips are tapered to compensate the side laps of the sheet. The perfect nesting of the strips offers a weather tight construction at many points without the use of metal flashing. F2 strips are 37.8" long.

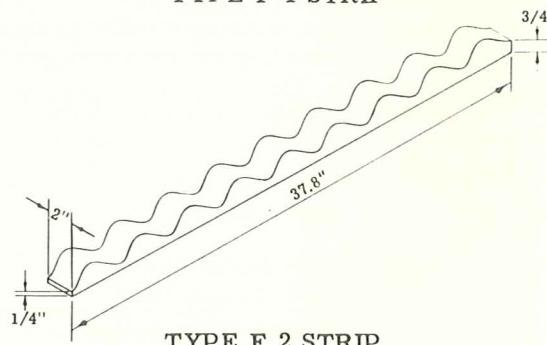
Strips identified as type F3 are for use with 1/2 round ridge roll only. These are grooved for the ridge roll to fit into and they are tapered to compensate the slope of 4.2 sheets applied with one corrugation side laps. These strips are for use on the top of the sheets and are furnished 37.8" long.

Strips identified as Type F4 are for use with 4.2 corrugated sheets which are applied with butt side joints (no side laps). Type F4 strips are not tapered and can be used on either the top or bottom of the corrugated sheets. These strips are 42" long.

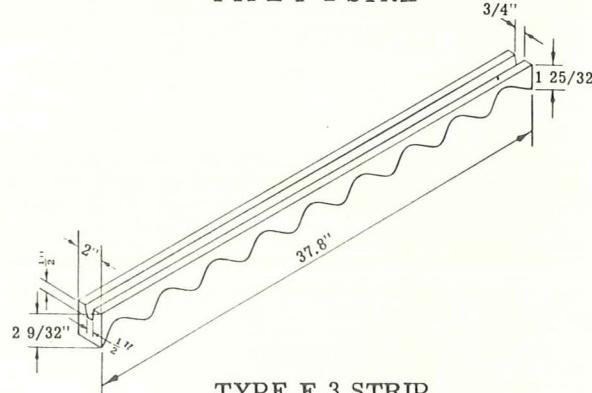
exact dimensions to perfectly fit the contour of our 4.2 Careystone Corrugated sheet. All F type strips are 2" wide.



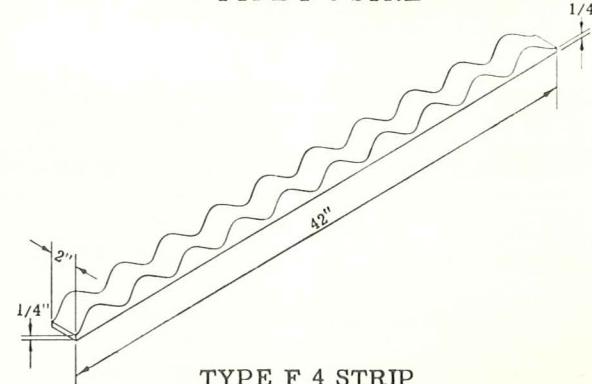
TYPE F 1 STRIP



TYPE F 2 STRIP



TYPE F 3 STRIP



TYPE F 4 STRIP

If fasteners do not pass through strips at door or sash heads, at curb over laps or similar places, it is recommended that #14 x 1-1/4" sheet metal screws be driven through the sheet into the strip in the crests

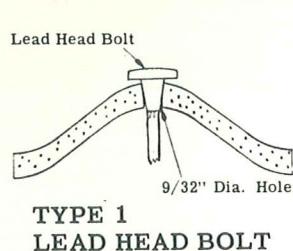
of every third corrugation. If the use of sheet metal screws is objectionable, a strip holding flashing may be used. See detail drawing on page 62.

FASTENERS

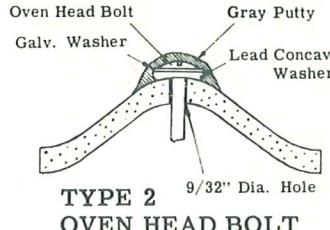
Carey offers three types of standard fasteners to secure Careystone Corrugated sheets to steel. These are:

- Type 1. Lead head electro-galvanized 1/4" bolts and hot dipped galvanized clips.
- Type 2. Oven head electro-galvanized 1/4" bolts, washers, hot dipped galvanized clips and gray putty. With the hed-calk unit no washers are required under the bolt heads.
- Type 3. Nelweld System consists of cadmium plated or stainless steel studs and zinc alloy or stainless steel Nelweld hexnuts with neoprene or lead collars.

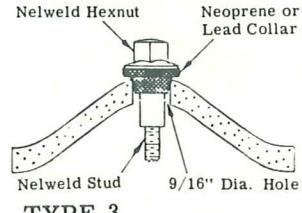
As a service to our customers, Type 1 and Type 2 fasteners are stocked by Carey for shipment with Careystone Corrugated sheets.



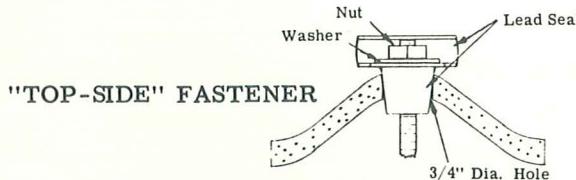
**TYPE 1
LEAD HEAD BOLT**



**TYPE 2
OVEN HEAD BOLT**



**TYPE 3
NELWELD HEXNUT**

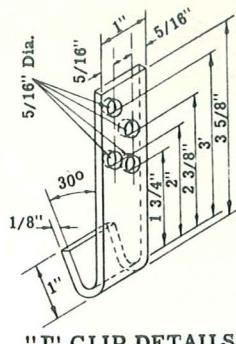


Types 1 and 2 fasteners include the use of either lead head 1/4" electro-galvanized bolts or oven head 1/4" electro-galvanized bolts, hed-calk, galvanized washers, lead cup washers, lead concave washers, hot dipped galvanized ridge toggles, Z clips, hook clips and J clips. Both types of bolts are stocked by Carey in

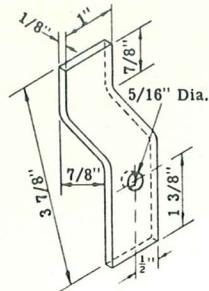
1-1/2" length and in 1" increments from 2" up to and including 15".

For application over wood, Carey stocks #14 x 4" lead head electro-galvanized drive screw nails.

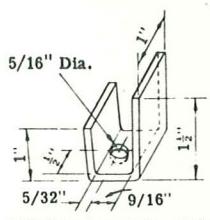
Complete details of these items are shown below



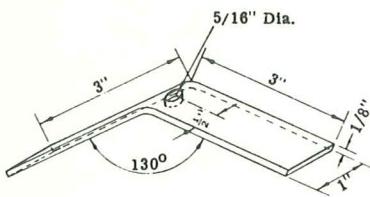
"J" CLIP DETAILS



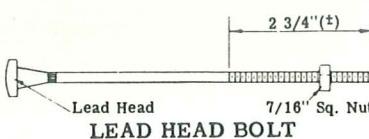
"Z" CLIP DETAILS



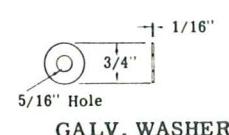
HOOK CLIP DETAILS



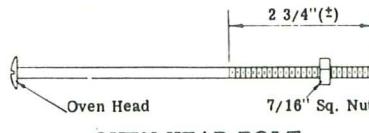
RIDGE TOGGLE DETAILS



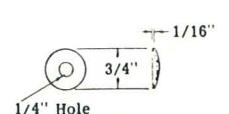
LEAD HEAD BOLT



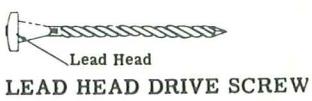
GALV. WASHER



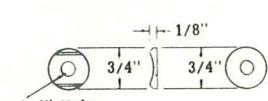
OVEN HEAD BOLT



LEAD CUP WASHER



LEAD HEAD DRIVE SCREW



LEAD CONCAVE WASHER

FASTENERS (Continued)

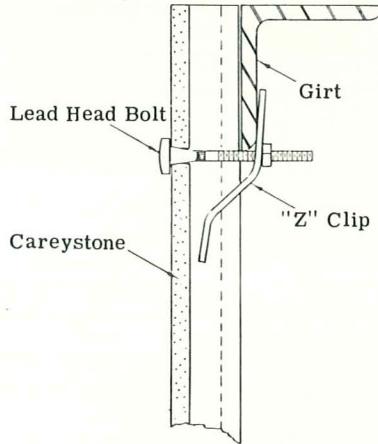
Types 1 and 2, lead head and oven head bolts, require $9/32"$ dia. holes to be drilled and type 3, Nelweld system, requires $9/16"$ holes to be drilled. For Topseal (#14 Self-Tapping Screw) Fastener, hole size to be drilled in 4.2 Careystone to be $5/16"$ diameter. Hole size in steel to be smaller per Fabricated Products specifications depending on thickness of metal members. For Holegrip side lap fastener, drill $1/2"$ diameter hole in Careystone. For "Top-Side" (H & B) Fasteners of types C, E, J and SHO, drill $3/4"$ diameter hole in 4.2 Careystone. All drilling of holes is done in the field while each sheet is held in place at its respective location on the building. Variation of the steel does not permit ground drilling. If this is done, the fasteners will not fall into the proper locations.

All types of fasteners are used in the same locations across the sheets. Three fasteners per sheet per member are used on roofing at the ridge or topmost purlin and at the eave purlin. On siding, three fasteners per sheet per member are used at the top and bottom girts of all elevations and at sash and door heads, sash sills, and at the top and bottom of all openings. These assemblies are located in the first corrugation, fourth corrugation, and seventh corrugation. At all intermediate purlins or girts, regardless if the sheets lap or span the members, two fastener assemblies are used per member per sheet. These are located in the first and fifth corrugations.

Type 1 lead head bolt and clip method:

Z CLIP ASSEMBLY

The Z clip assembly is used when the purlins or girts are located with the legs up. The assembly consists of one $3"$ lead head bolt, one nut, and one 4.2 Z clip. The clip is located so that the bolt passes through the clip and the bolt rests on the upper edge of the steel member. The tapered shank of the lead head seals perfectly with the $9/32"$ hole in the Careystone sheet giving weather-tight construction.

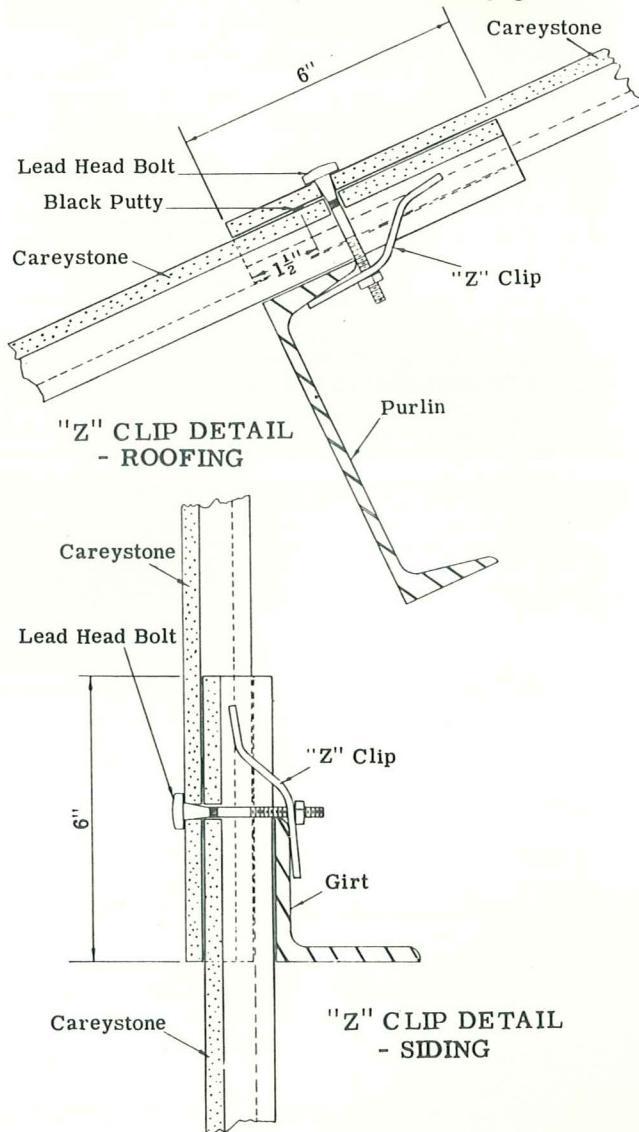


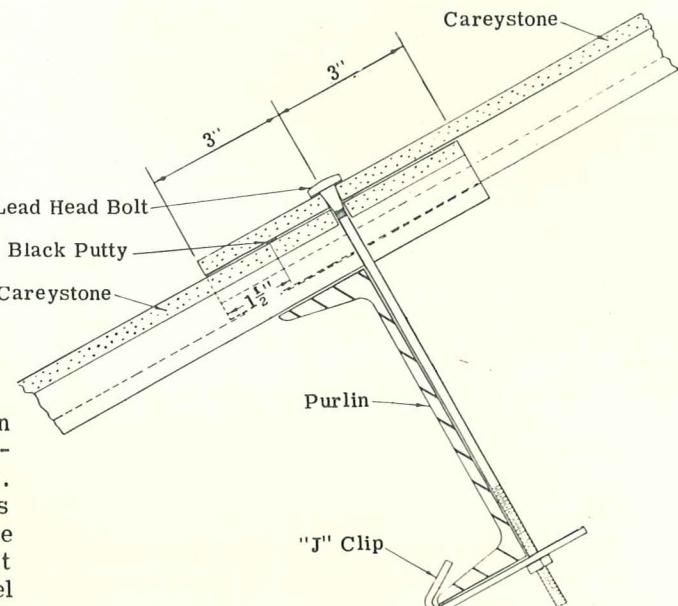
"Z" CLIP DETAIL - SIDING
WHEN SHEET ENDS AT TOP OR BELOW TOP
OF GIRT OR AT EAVE STRUT

TYPE OF FASTENER GOVERNS END LAP POSITION

The type of fastener used governs location of the $6"$ end lap. On end lap application the sheets overlap each other $6"$ and these laps must occur over supporting members. Where J clips, hook clips or "Top-Side" Type J or Type C Fasteners are used on the supporting member, the lower sheet extends $3"$ above the top of the member. The bottom edge of the overlapping sheet extends $3"$ below the top of the member thus giving the $6"$ end lap. (See J clip and hook details Page 21 and 22. Where Z Clips or "Top-Side" Type SHO are used on the supporting member, the lower sheet must extend $6"$ above the bottom of the member and the overlapping sheet stops even with the bottom of the member (See Z Clip Details below).

Where lead head drive screws, Topseal or Nelweld studs are used, the lower sheet extends $3"$ above the centerline of the member and the overlapping sheet $3"$ below the centerline of the member. For Lead Head Drive Screw, see detail on page 25.





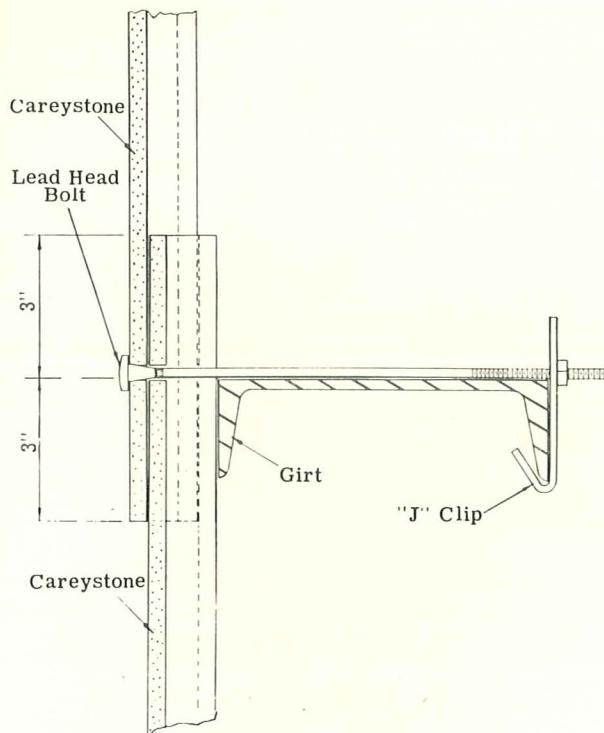
J CLIP ASSEMBLY

The J clip and lead head bolt assembly is used on channels when the legs are down. The assembly consists of one lead head bolt, one nut and one J clip. The bolt passes through the hole in the clip that is nearest to the back of the channel and the shank of the bolt rests on the flat side of the channel. The bolt must be furnished 3" longer than the size of the channel used. The tapered shank of the lead head seals perfectly with the 9/32" hole in the Careystone sheet giving weather-tight construction.

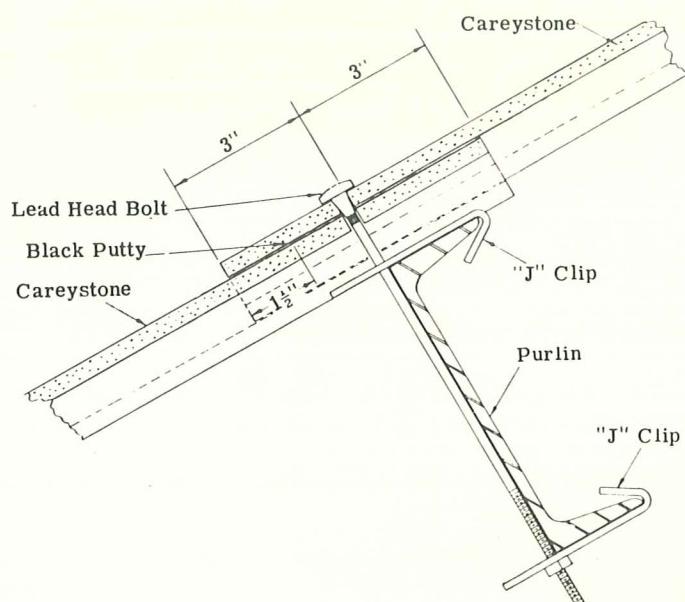
"J" CLIP DETAIL - ROOFING

DOUBLE J CLIP ASSEMBLY

The double J clip method is used only when specified, instead of Z clips, on channels located with the legs up. This assembly consists of one lead head bolt, one nut, and two J clips. The J clips are placed on the two legs of the channel and the bolt passes through these two clips in the holes nearest to the channel. The bolt is furnished 3" longer than the size of the channel used. The tapering shank of the lead head seals perfectly with the 9/32" hole in the Careystone sheet giving weather-tight construction.



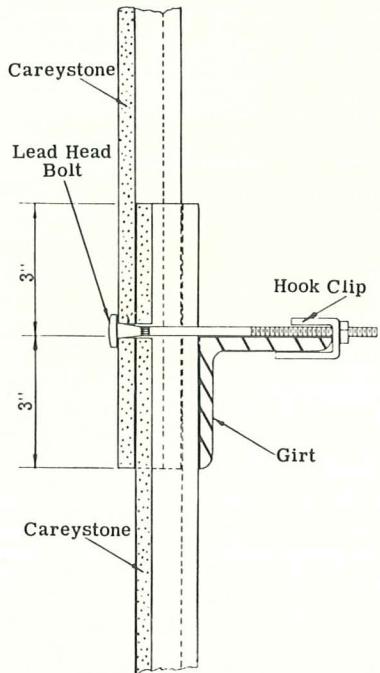
"J" CLIP DETAIL - SIDING



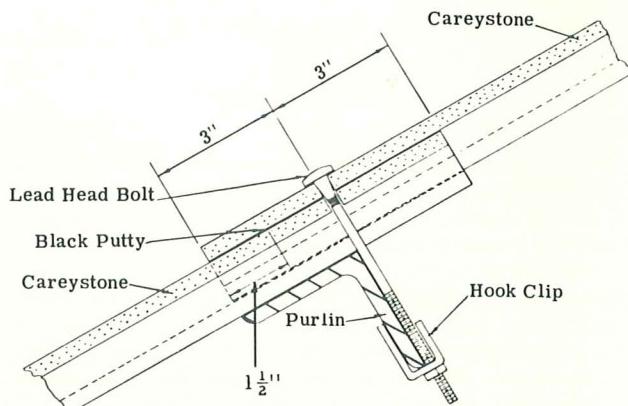
DOUBLE "J" CLIP DETAIL - ROOFING

HOOK CLIP ASSEMBLY

The hook clip assembly is used when the purlins or girts are located with the top legs pointing in. This assembly consists of one lead head bolt, one nut and one hook clip. The hook clip hooks around the leg of the steel member that is pointing in and the bolt passes through the hole in the clip and rests on the flat surface of the member. The bolt must be furnished 3" longer than the dimension of the leg pointing in. The tapered shank of the lead head seals perfectly with the 9/32" hole in the Careystone sheet giving weather-tight construction.



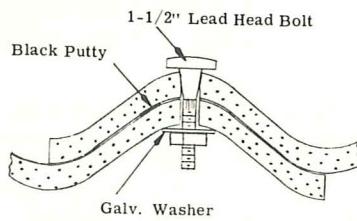
HOOK CLIP DETAIL - SIDING



HOOK CLIP DETAIL - ROOFING

SEAM BOLT ASSEMBLY

On roofing, seam bolts are used in the side laps of the Careystone. One seam bolt is used midway between each purlin. A lead head seam bolt assembly consists of one 1-1/2" lead head bolt, one nut and one galvanized washer. The galvanized washer is used between the underside of the Careystone and the nut. The tapered shank of the lead head seals perfectly with the 9/32" hole in the Careystone sheet giving weather-tight construction.



LEAD HEAD SEAM BOLT DETAIL
REQUIRED ON ROOFING ONLY

TYPE 2 OVEN HEAD BOLT AND CLIP METHOD

Z CLIP ASSEMBLY

The Z clip assembly is used when the purlins or girts are located with legs up. The Z clip assembly consists of one 3" oven head bolt, one nut, one galvanized washer, one lead concave washer and one 4.2" Z clip.

The galvanized washer is used directly under the head of the bolt. The lead concave washer is put on the bolt with the flat side next to the galvanized washer. The concave part of the lead washer fits on the crest of the corrugation of the Careystone sheet.

The Z clip is located so that the bolt that passes through the hole in the clip rests on the edge of the steel member. On roofing, all the exposed bolt heads, galvanized washers, and lead concave washers are covered with Carey Gray Roof Putty.

J CLIP ASSEMBLY

The J clip and oven head bolt assembly is used on channels when the legs are down. The assembly consists of one oven head bolt, one nut, one galvanized washer, one lead concave washer, and one J clip. The galvanized washer is used directly under the head of the bolt. The lead concave washer is then put on the bolt with the flat side next to the galvanized washer. The concave part of the lead washer fits on the crest of the corrugation of the Careystone sheet. The J clip fits around the inside leg of the channel and the bolt passes through the hole nearest to the back of the channel. The bolt rests on the back of the channel. The bolt must be furnished 3" longer than the size of channel. On roofing, all the exposed bolt heads, galvanized washers and lead concave washers are covered with Carey Gray Roof Putty.

DOUBLE J CLIP ASSEMBLY

The double J clip method is used only when specified, instead of Z clips, when channel members are located with the legs turned up. This assembly consists of one oven head bolt, one nut, one galvanized washer, one lead concave washer, and two J clips. The galvanized washer is used directly under the head of the bolt. The lead concave washer is put on the bolt with

the flat side next to the galvanized washer. The concave part of the lead washer fits on the crest of the corrugation of the Careystone sheet. The J clips are placed on the two legs of the channel and the bolt passes through these two clips in the holes nearest to the channel. The bolt is furnished 3" longer than the size of the channel used. On roofing, all the exposed bolt heads, galvanized washers and lead concave washers are covered with Carey Gray Roof Putty.

HOOK CLIP ASSEMBLY

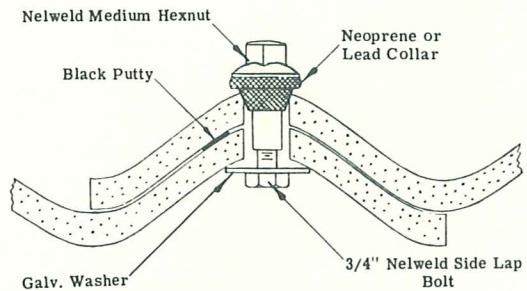
The hook clip assembly is used when the purlins or girts are located with the top legs pointing in. The hook clip assembly consists of one oven head bolt, one nut, one galvanized washer, one lead concave washer and one hook clip. The galvanized washer is used directly under the head of the bolt. The lead concave washer is put on the bolt with the flat side next to the galvanized washer. The concave part of the lead washer fits on the crest of the corrugation of the Careystone sheet. The hook clip hooks around the leg of the steel member that is turned in and the bolt passes through the hole in the clip and rests on the flat surface of the member. The bolt must be furnished 3" longer than the dimension of the leg pointing in. On roofing, all the exposed bolt heads, galvanized washers and lead concave washers are covered with Carey Gray Roof Putty.

SEAM BOLT ASSEMBLY

On roofing, seam bolts are used in the side laps; one bolt assembly midway between each purlin. An oven head seam bolt assembly consists of one 1-1/2" oven head bolt, one nut, two galvanized washers and one lead concave washer. One galvanized washer is used directly under the head of the bolt. The lead concave washer is put on the bolt with the flat side next to the galvanized washer. The concave part of the lead washer fits the crest of the corrugation of the Careystone sheet. The second galvanized washer is used between the underside of the Careystone and the nut. All oven head seam bolt heads, galvanized washers, and lead concave washers are covered with Carey Gray Roof Putty.

TYPE 3 NELWELD METHOD

This method of application permits all the erection of the Careystone sheets to be done from the outside of the building. This system requires special Nelwelding equipment (Generator or batteries and Nelweld Gun) as each stud is welded in the field directly to the steel purlins or girts.



NELWELD SIDE LAP BOLT
(NOT REQUIRED ON SIDING)

Medium hexnuts are used where they pass through one or two thicknesses of 4.2" Careystone. These locations are:

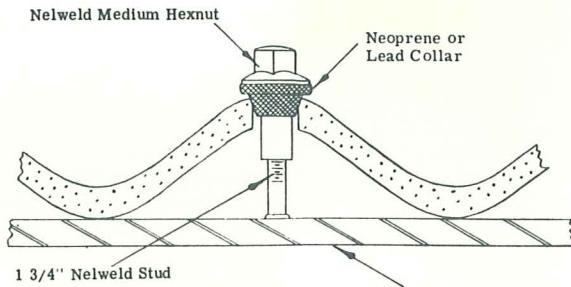
At all eave and ridge members on roofing and on top and bottom members of siding. For all fasteners at intermediate steel members, and at tops and/or bottoms of all openings; in all the end laps of sheets in the fifth corrugation. The medium length is also used with the side lap assembly. In short, the medium length hexnut is used in all locations, except at corners where four sheets overlap resulting in three thicknesses of Careystone.

Long hexnuts are used where they pass through three thicknesses of 4.2 Careystone. These locations are:

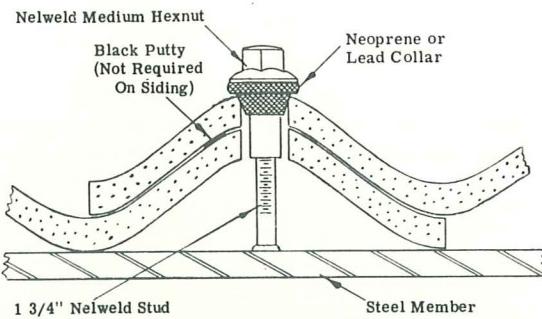
At corner of sheets where four sheets meet forming three thicknesses of Careystone.

On roofing, Nelweld side lap bolts with medium Hex-nuts are used in all side laps located midway between each purlin. Nelweld side lap bolts are 3/4" long cadmium plated or stainless steel. A special tool is made by Nelweld so that these seam bolts can be applied from the top side.

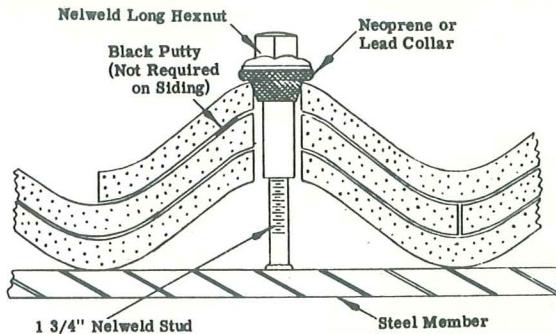
All studs are furnished in one length 1-3/4" long. Hexnuts are furnished with either neoprene or lead collars - customer's preference. Hexnuts are stocked in two lengths, with the location of use in the sheet determining the length to be used.



NELWELD MEDIUM HEXNUT (NO LAP)



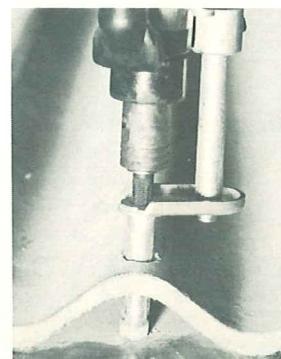
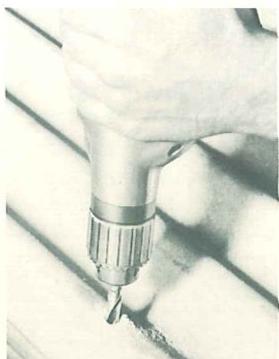
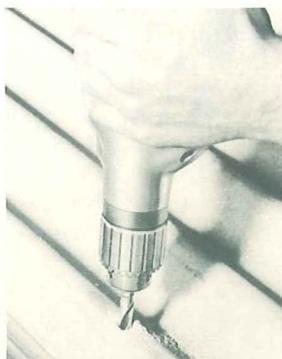
NELWELD MEDIUM HEX-NUT (2 LAP)



NELWELD LONG HEX-NUT (3 LAP)

NELWELD FASTENERS (Continued)

APPLICATION PROCEDURE



1 - After sheet is laid in desired position on purlin or girt, a $9/16"$ hole is drilled through the crest of the corrugation. Drill must be held at perfect right angle to sheets to permit Nelweld hexnut collar to seat perfectly.

2 - Using an end mill through the hole in the material, excessive rust or paint is removed from the purlins or girt. Drill must be held at perfect right angle to sheets to permit proper mill area for stud to weld at right angle to sheets.

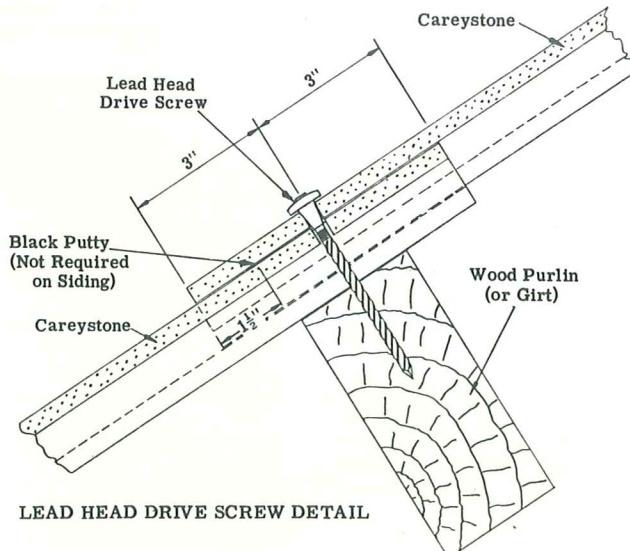
3 - Threaded end of stud and a ceramic ferrule are placed in the stud welding gun. The operator then inserts the end of the gun into the hole until contact is made with the purlin or girt. Trigger of gun is pressed and the stud is automatically welded in a fraction of a second.

4 - Nelweld hexnut is then run down on the stud. To avoid excessive nut pressure, the hexnut is tightened with the socket wrench having only a 4" long handle and tightened by hand with only moderate effort. A watertight, corrosion-resistant seal is thus formed.

APPLICATION OVER WOOD

On buildings or areas having wood purlins and/or girts or that are solid sheathed with wood in areas that are to be covered with 4.2 Careystone we recommend the use of 4" lead head electro-galvanized #14 drive screw nails.

This drive screw nail has the galvanized shank extending flush with the lead head, and thus the nail can be hammered in place without distorting the lead head. The tapered shank of the lead head seals perfectly with the $9/32"$ hole in the Careystone sheet giving weather-tight construction.



There are several methods of applying corrugated asbestos sheets. While we show seven methods, the first method (staggered joint) and the second method (straight joint) are most commonly used. These first two methods are more economical from a material cost and erection cost standpoint.

The most economical and actually, the most serviceable of all methods is the first (staggered joint) method. This statement is qualified by the fact that there are no sheets that require corners cut. There is an extra charge for cutting corners. The second method, straight joint or cut corner, requires each sheet to be furnished cut to exact length so that all end laps are exactly 6" (\pm). The applicator must check each elevation for its height to make

certain that the first course is started properly; otherwise the sheets in the top course may be too long or too short. If too long, each sheet must be cut in the field, adding expense to the job; or if too short, additional materials must be purchased. With staggered joint application, the end laps can be varied to take up or makeup any differences.

With straight joint (cut corner) application the erector often has 3 different types (types A, B, and C) sheets of the same length to handle. Any one type cannot be substituted for the other type, with the result that the sorting of the types and extra handling of different types of sheets adds extra expense for the erection.

STAGGERED JOINT METHOD OF APPLICATION — METHOD NO. 1

(Preferred Method - see above paragraph)

Application of sheets is always started at the lower left corner of a roof area or on a siding elevation. Because of severe wind conditions, or the appearance of the laps, or odd construction of the area to be covered, or when joining an existing area, the application can be started at the lower right corner. This reverses the erection procedure described below. The starting at the left and working to the right is described below and recommended as the most natural working direction for the applicators.

The first sheet - lower left hand corner of the elevation is started with a full width, 10 corrugation 42" wide sheet. This first sheet must be placed to be true in line, having allowed the required rake and eave or curb overhang. Rake or eave overhangs should not be more than 12". Curb over-lap to be as specified on architectural plans or on Carey layout if sheets do not rest on a ledge built in the curb. When there is to be an over hang at the eave or curb, it is recommended that a guide line be stretched so that the bottom edge of each sheet is true with it and forms a perfect line. If the area to be covered is siding and there is an open area underneath it, or some other material to be erected later, it is recommended that a guide line be stretched so that the bottom edge of each sheet is true and in a perfect line. The upper part of the first sheet must extend at least 3" above the top most edge of the steel member regardless if the legs are turned up or down.

Fasten the lower end of the sheet to the lower supporting member using a fastener assembly in the crest of the fourth and seventh corrugation. If there are intermediate members, fasten to each of them through the crest of the fifth corrugation. Do not fasten the top of the sheet at this time if there are more courses of sheets to be applied.

Prior to installing the second sheet, when applying roofing, Carey Black Putty must be placed on the right edge corrugation (see paragraph on application of black putty page 60.) No black putty is required in laps of siding.

The second sheet is applied in perfect alignment with the first sheet and with the bottom edge against the guide line if the course overhangs. The second sheet overlaps the first sheet one corrugation.

Fasten the lower end of the sheet to the lower steel member using one fastener in the crest of the first corrugation (this will pass through both sheets) fourth corrugation and seventh corrugation. If there are intermediate members, fasten to each of them through the crest of the first corrugation (this will pass through both sheets) and fifth corrugation. The top edge of the sheet is not fastened at this time if there are more courses of sheets to be applied. On roofing, seam bolts are required in the side laps using one assembly midway between each purlin. These should be put in at the same time as the sheets are being fastened to the purlins.

Apply the third sheet in the first course by overlapping the second sheet one corrugation. If roofing, Carey Black Putty must be applied to the right edge corrugation of the second sheet prior to putting the third sheet in place, fasten the third sheet in the same manner as described above for second sheet.

Each successive sheet in the first course is applied as described above for the second and third sheets. The last sheet in the first course, at the right end of the area, is cut to the required width in the field. On roofing, be sure to allow the approximate same rake overhang as on the other end of the building and cut the sheet in the vale of the corrugation nearest to the dimension of the overhang.

In starting the second course of sheets, it is necessary to check the length of sheet furnished for use in that course, either by using a rule or one of the sheets. The sheet location in this area is determined to allow the 3" minimum distance required extending beyond the top most member this sheet will rest on. The location of the bottom edge of the sheet on the first course of sheets is thus determined. At this point a chalk line is snapped across the entire area.

METHOD NO. 1 (Continued)

On staggered joint jobs the end laps are often furnished to be more than 6" as standard length sheets are used rather than having the sheets cut to the exact length. This extra lap area is to the advantage of the job.

The chalk line is the guide line to be used to keep the bottom edge of the sheet in a true line for this entire course. On roofing, the bead of black putty should be located 1-1/2" above the chalk line.

The first sheet in the second course is applied starting at the left end of the course. A full width, 10 corrugation sheet that has had one corrugation cut off in the field, making it a nine corrugation sheet, is used as the first sheet. This sheet is placed in perfect alignment with the outside edge of the first sheet in the first course and has the bottom edge line up with the chalk line. The edge of the ninth corrugation at the lower right edge of the sheet will butt the edge of the corrugation of the second sheet in the first course for the length of the lap.

This first sheet of the second course is fastened to the supporting member at the bottom edge. These fasteners will pass through this sheet and the top part of the sheet under it in the first course. Fastener is located in the fifth corrugation. Also fastener in fifth corrugation at all intermediate members if sheet spans members. Do not fasten top of sheet if there are more courses.

On roofing, prior to application of second sheet and all succeeding sheets, Carey Black Putty for side lap should be applied 1/2" from the crest of the last corrugation toward the main part of the sheet, on the last sheet installed, and for the end lap 1-1/2" above the chalk line on the top end of the sheet in the preceding course.

The second sheet and all succeeding sheets in the second course are all 10 corrugation (full width) sheets.

Fasten at bottom edge of sheet and at intermediate members if sheet spans members. Do not fasten top of sheets if there are more courses. Fasteners are located at all members through the crest of the first corrugation and fifth corrugation. The fastener in the bottom edge at the end lap in the first corrugation passes through the 3 thicknesses of Careystone -- i.e. through the first corrugation of the top sheet at the lower left corner, through the lower right corner of the preceding sheet in that course and through the upper right part in the preceding sheet of the lower

course. Each sheet overlaps preceding sheet one corrugation and is lined up at bottom edge with the chalk line. The last sheet in the course should be trimmed as required to match outside edge line of last sheet in the first course. If roofing, install seam bolts in side laps using one midway between each purlin.

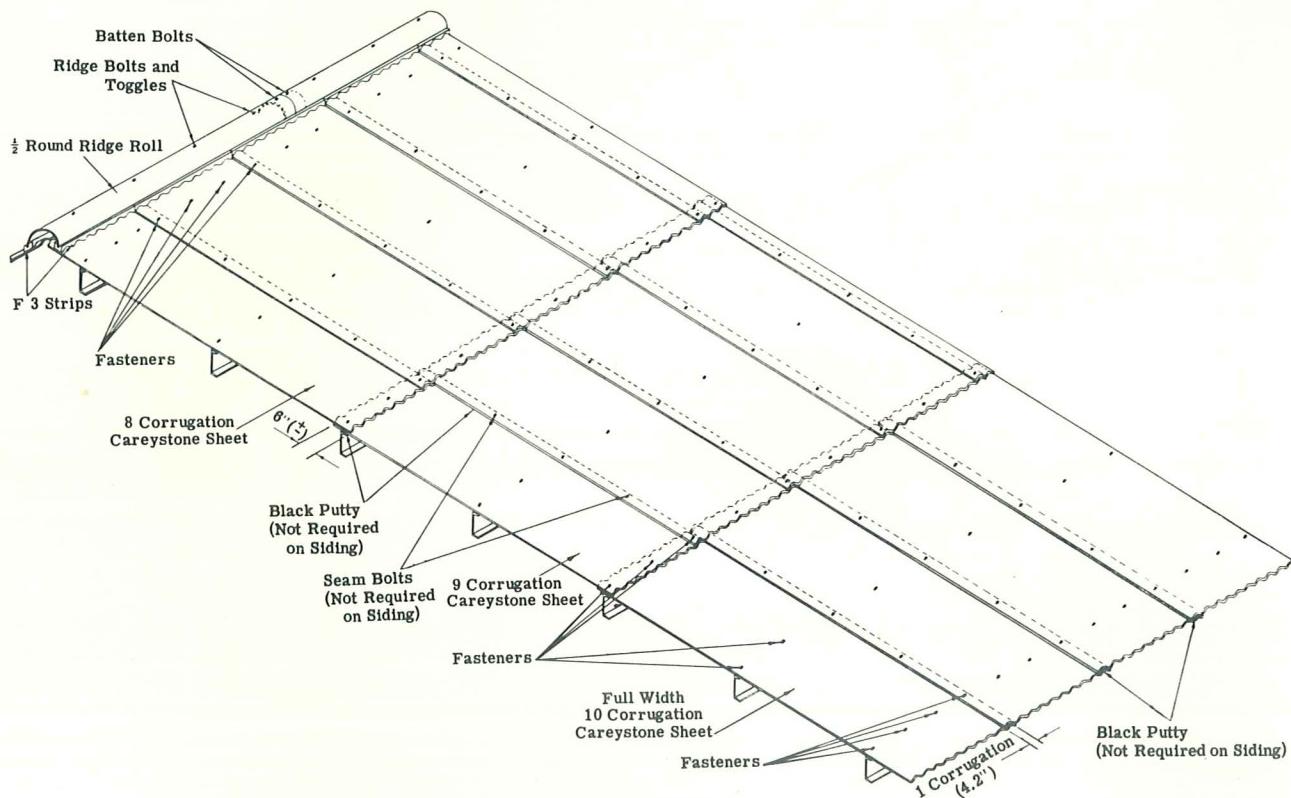
The first sheet in the third course has two corrugations trimmed off and the first sheet in the fourth course has three corrugations trimmed off. First sheets in successive courses have one additional corrugation trimmed off per course.

Sheets in successive courses are installed and fastened in the same manner as the sheets in the second course.

At the top or ridge member of roofing and the top member of siding, three fasteners are used per sheet at that member, being located in the first, fourth, and seventh corrugations. Three fasteners per sheet in the same locations are used at sash and door heads, sash sills and at top and bottom of openings. No fasteners are required at the vertical members of the sash and door jambs, and sides of openings.

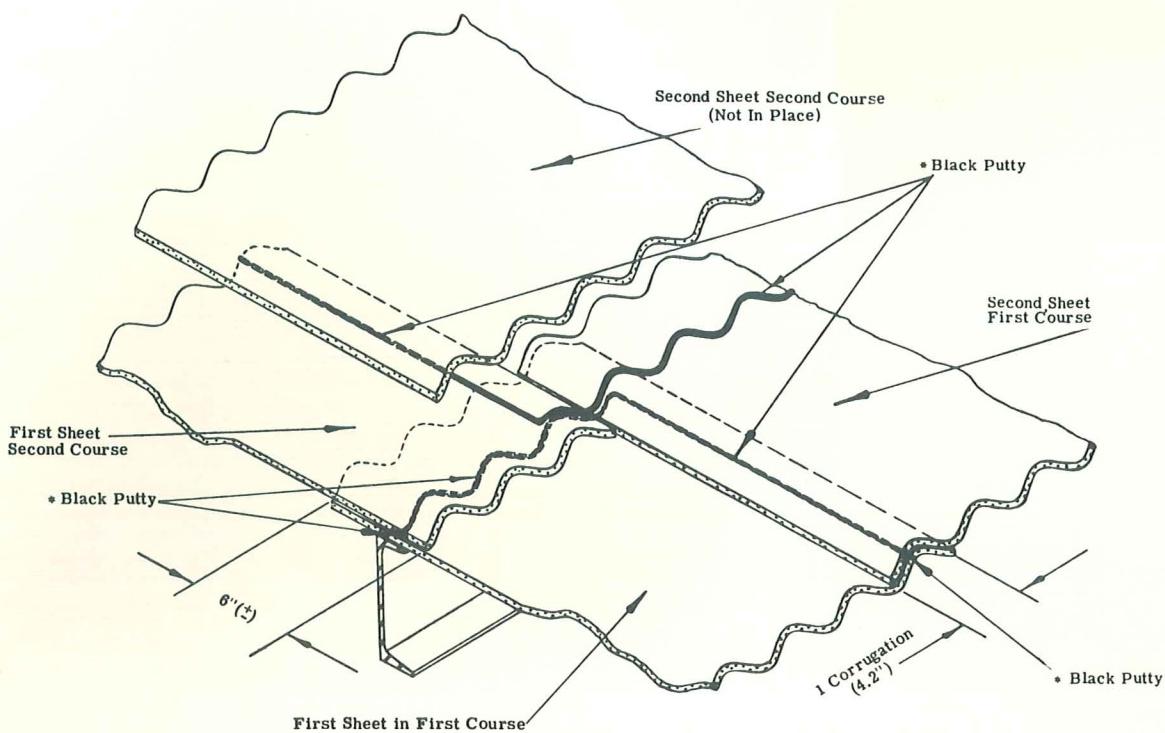
On areas having openings such as doors, duct openings, or areas where some other type of material is employed, Careystone can only be applied up to the opening, even if that course should continue on the other (right) side of the opening. Prior to continuing that course on the other side of the opening, it is necessary to install a succeeding course or courses first, including the course that runs over the opening. This course is carried over the opening until a part of a full sheet extends beyond the opening. This determines the lap line and narrow cut sheets are then brought down next to the right side of the opening staggering the sheets the one corrugation with each course. These narrow cut sheets are overlapped in each course with full width sheets until the next opening where the same procedure must be followed. This is the only accurate way to have the corrugations continue across the entire area. Never start with a full width sheet at the right side of an opening if there is Careystone Corrugated over the opening as neither the corrugations nor the sheet laps in the course over the opening will match up and stagger properly. Do not attempt to measure across the opening and then try to calculate the location of the corrugation to precede erection on the other side of the opening in the same course, for it would be improbable that the corrugations would work out correctly with the course over the opening.

DETAILS OF METHOD NO. 1

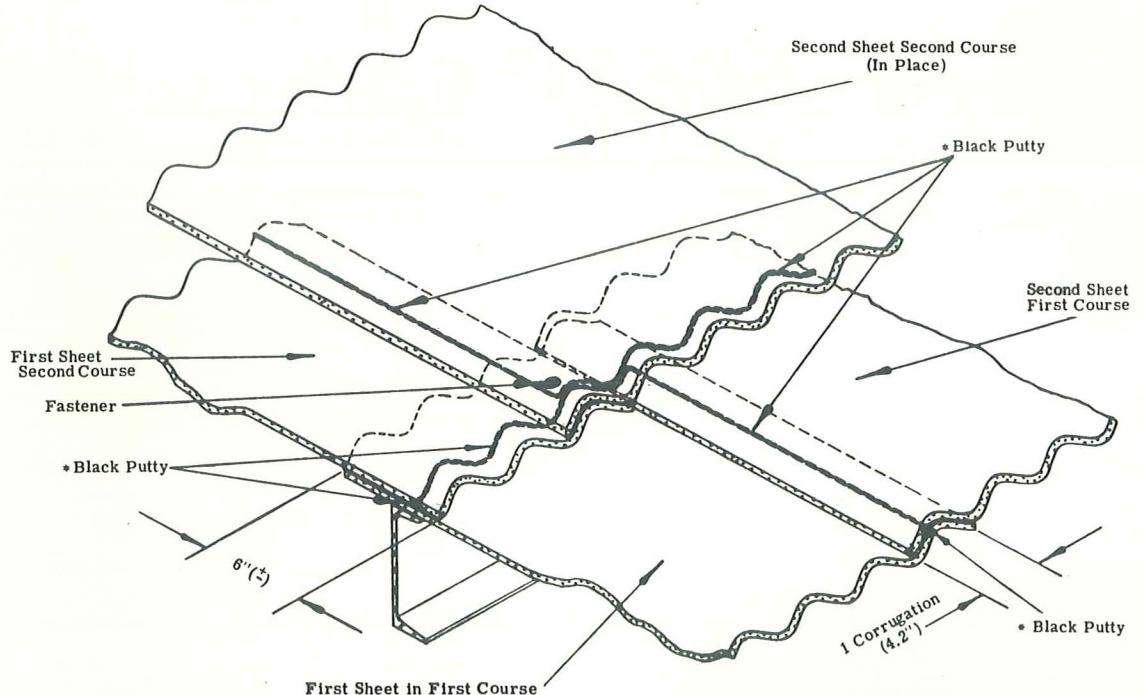


LAYOUT OF STAGGERED JOINT APPLICATION
(METHOD NO. 1)

DETAILS OF METHOD NO. 1 (Continued)



CORNER DETAIL OPEN



* (Not required on Siding)

CORNER DETAIL CLOSED

STRAIGHT JOINT (CUT CORNER) METHOD OF APPLICATION — METHOD NO. 2

The straight joint or cut corner method is more suitable for side wall construction than for roofing. The straight joint method offers a pleasing straight line appearance.

The principle of the cut corner or straight joint method of application is to have the diagonal cut corners of adjacent sheets butting together and the square corner of the overlapping sheet covering this joint.

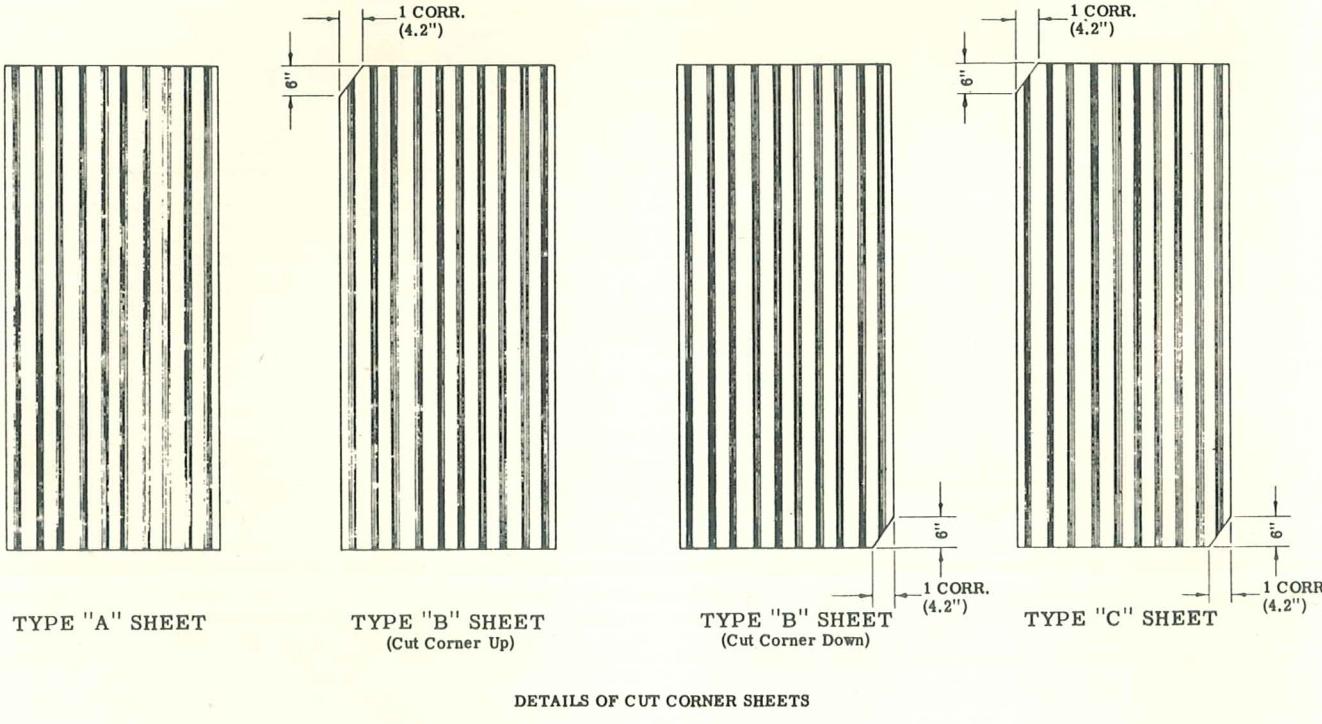
Cut corner sheets must always be applied from left to right as corners of sheets are cut for left to right application. If there is some special reason why a job cannot be applied in that manner, it is necessary to specify that sheets have the reversed corners cut for right to left application. Described below is the standard method of applying from left to right.

There are three types of sheets used in the cut corner method of application. These are

- Type "A" - Having no cut corners
- Type "B" - Having one cut corner
- Type "C" - Having two cut corners

Type "B" sheets have one corner cut -- the upper left corner. This sheet reversed end for end would have the cut corner on the lower right end. The type "B" sheets are used in both of these positions. Type "C" sheets have two cut corners, one at the upper left and the other at the lower right corner.

Corners are cut on the diagonal from a point one corrugation (4.2") across the sheet and 6" from the corner on the edge of the sheet.



The first course is started at the lower left end of the area to be covered. The first sheet applied is a type "A" (no cut corner) full width sheet. This first sheet must be placed to be true in line, having allowed the required rake and eave or curb overhang. Rake or eave overhangs should not be more than 12". Curb overlap to be as specified on architectural plans or on Carey layout if sheets do not rest on a ledge built in the curb. When there is to be an overhang at the eave or curb, it is recommended that a guide line be stretched so that the bottom edge of each sheet is true with it and forms a perfect line. If the area to be covered is siding and there is an open area underneath it, or some other material to be erected later, it is recommended that a guide line be stretched so that the bottom edge of each sheet is true and in a perfect line.

The upper part of the first sheet must extend at least 3" above the top edge of the steel member regardless if the legs are turned up or down.

Fasten the lower edge of the sheet to the lower supporting member, using a fastener assembly in the crest of the fourth and seventh corrugation. If there are intermediate members, fasten to each of them through the fifth corrugation. Do not fasten the top of the sheet at this time if there are more courses of sheets to be applied.

Prior to installing the second sheet, when applying roofing, Carey Black Putty must be placed on the right edge corrugation (see paragraph on application of black putty page 60.) No black putty is required in laps of siding.

METHOD NO. 2 (Continued)

The second sheet applied is a type "B" sheet (having one cut corner) and locating it with the cut corner at the upper left. This sheet is applied in perfect alignment with the first sheet and with the bottom edge against the guide line if the course overhangs. This second sheet overlaps the first sheet one corrugation.

Fasten the lower end of the sheet to the lower steel member using one fastener in the crest of the first corrugation (this will pass through both sheets), fourth corrugation and seventh corrugation. If there are intermediate members, fasten to each of them through the first corrugation (this will pass through both sheets) and the fifth corrugation. The top edge of the sheet is not fastened at this time if there are more courses of sheets to be applied.

On roofing, seam bolts are required in the side laps using one assembly midway between each purlin. These should be put in at the same time as the sheets are being fastened to the purlins.

The third sheet in the first course is also a type "B" sheet placed the same as the second sheet and overlapping the second sheet one corrugation. On roofing, Carey Black Putty must be applied to the right edge corrugation of the second sheet prior to putting the third sheet in place. Fasten the third sheet in the same manner as described above for second sheet.

Each successive sheet in the first course is a type "B" sheet and is applied as described above for the second and third sheets. The last sheet in this first course at the right end of the area is cut to the required width in the field. On roofing be sure to allow the approximate same rake overhang as on the other end of the building and cut the sheet in the vale of the corrugation nearest to the dimension of the overhang.

In starting the second course of sheets, it is necessary to check the length of sheet furnished for use in that course.

A chalk line is snapped across the top of the first course of sheets, exactly 6" down from the top edge of the sheets. This locates the bottom edge of the second course sheets, giving an exact 6" end lap to make the corner fit perfectly.

On roofing prior to applying the first sheet of the second course a bead of Carey Black Putty is placed 1-1/2" above the chalk line or 4-1/2" from the top edge across the first sheet of the first course.

The first sheet of the second course is a full width type "B" sheet with the cut corner at the lower right. The bottom edge of the sheet is lined up with the chalk line and the diagonal of the cut corner butts against the diagonal of the cut corner of the second sheet in the first course.

The first sheet is fastened to the supporting member at the bottom edge. These fasteners will pass through this sheet and the top part of the sheet under it in the first course. Fastener is located in the fifth corrugation, also fasten in the fifth corrugation at all intermediate members if sheet spans members. Do not fasten top of sheet if there are more courses.

On roofing, prior to application of second sheet and all succeeding sheets, black putty for side lap should be applied 1/2" from the crest of the last corrugation toward the main part of the sheet on all sheets as they are installed and for the end lap 1-1/2" above the chalk line on the top end of the sheet in the preceding course.

The second sheet in the second course is either a type "B" (one cut corner) sheet or a type "C" (two cut corner) sheet. If this is the top course of sheets in the entire area to be covered with Careystone, then type "B" sheets with the one cut corner at the lower right corners of the sheets are used.

If there are more courses, then type "C" (two cut corner) sheets are used. This sheet overlaps the first sheet one corrugation and with the bottom edge lined up with the chalk line, the square corner at the bottom left of the sheet will entirely overlap the diagonal butts of the preceding sheets in the first and second course. At the same time the diagonal of the cut corner at the lower right side of the sheet will butt the diagonal of the cut corner of the sheet in the first course.

The same type of sheets are used for the entire course with the exception of the last sheet. If type "B" sheets were used for this course then the last sheet would have to be a type "A" sheet. If type "C" sheets were used from the second sheet on for the entire course, then the last sheet in the course must be type "B" sheet.

The second sheet and all succeeding sheets in the second course are fastened at the bottom members and at all intermediate members (if any) through the crest of the first corrugation (this will pass through three thicknesses of Careystone) and through the crest of the fifth corrugation (this will pass through two thicknesses of Careystone) in the end lap. The last sheet in the second course should be cut to required width in the field to match the outside edge line of the last sheet in the first course. If roofing, add seam bolts in side laps using one fastener assembly midway between each purlin.

The first sheet in the third course and all subsequent first sheets in courses are type "B" sheets. The balance of the sheets in the third and subsequent courses are type "C" sheets (except last sheets in each course which are type "B" sheets). The last or top most course is always a row of type "B" sheets with the last sheet being a type "A" sheet.

Sheets are applied and fastened as described for the second sheet of the second course.

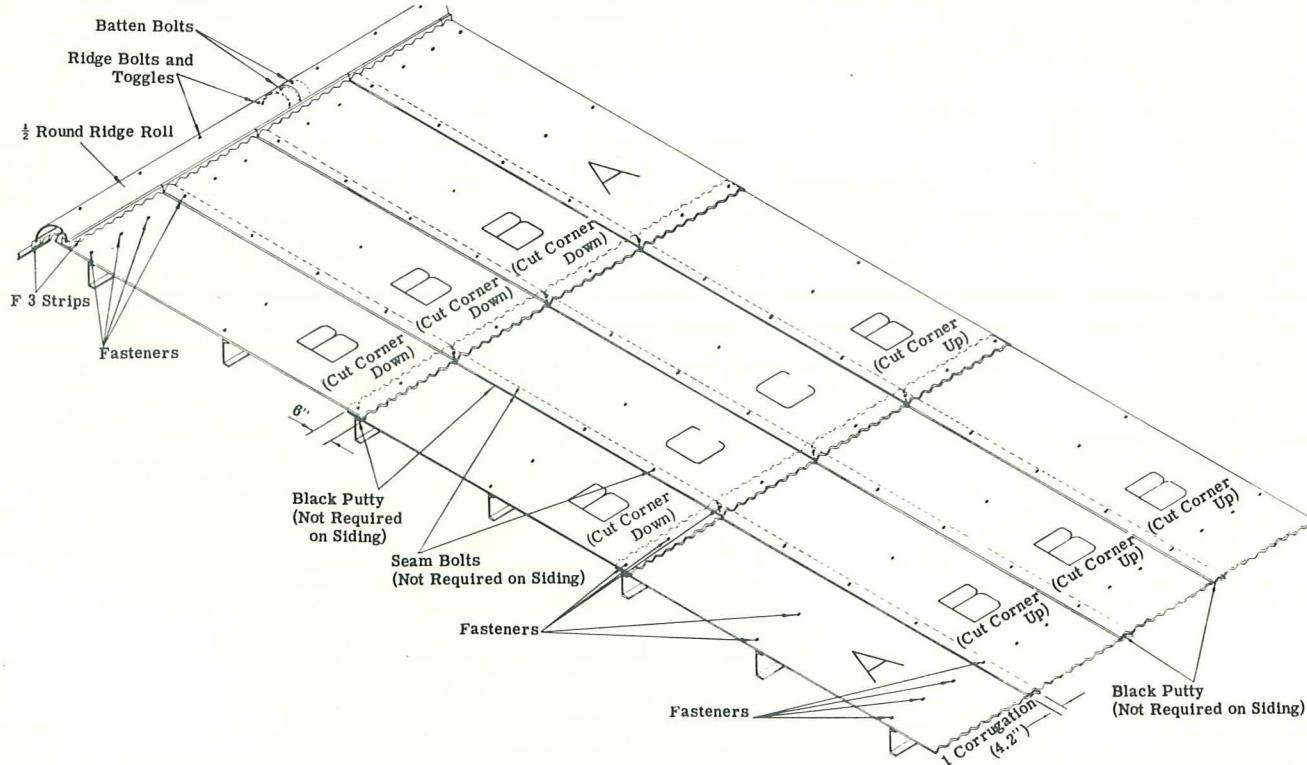
METHOD NO. 2 (Continued)

At the top or ridge member of roofing and the top member of siding, three fasteners are used per sheet at that member, being located in the first, fourth, and seventh corrugations. Three fasteners per sheet in the same locations are used at the sash and door heads, sash sills and at the top and bottom of openings. No fasteners are required at the vertical members at sash and door jambs and sides of openings.

On areas having openings such as doors, duct openings, skylights, or areas where some other type of material is employed, the corrugated asbestos can only be applied up to the opening, even if that course should continue on the other (right) side of the opening. Prior to continuing that course on the other side of the opening, it is necessary to install succeeding courses first, including the course that runs over the opening. This course is carried over the opening until a part of

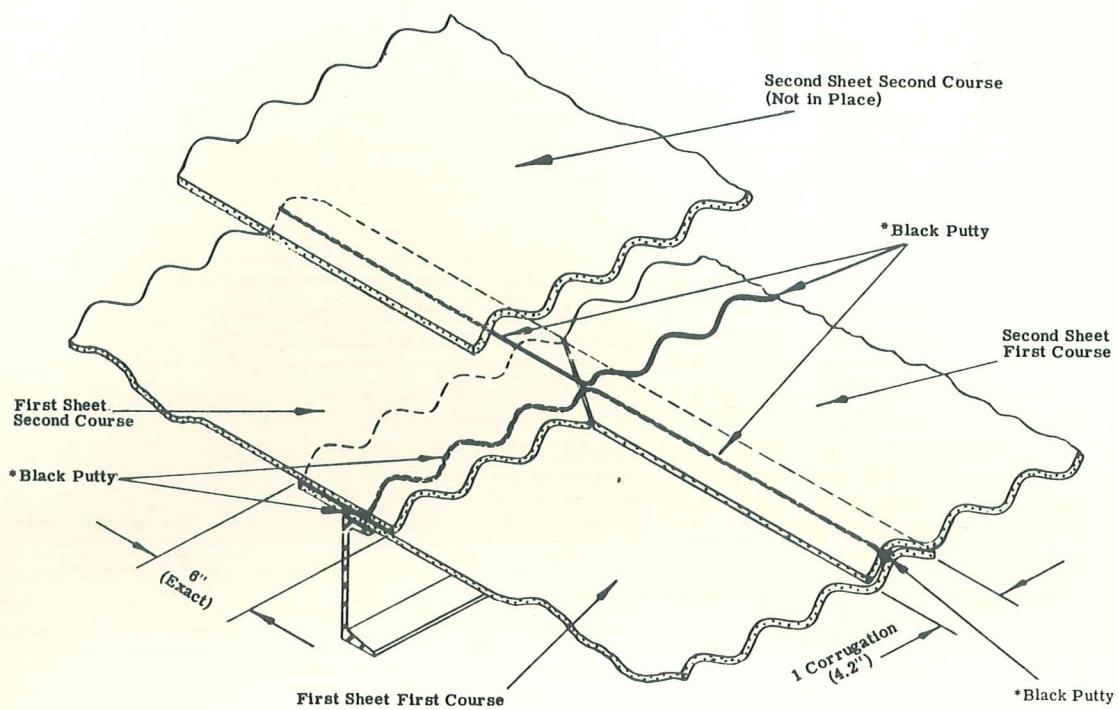
a full sheet extends beyond the opening. This determines the lap line and narrow cut sheets are then brought down next to the right side of the opening. These narrow sheets are over lapped in each course with full width sheets until the next opening where the same procedure must be followed. This is the only accurate way to have the corrugations continue across an entire area. Never start with a full width sheet at the right side of an opening if there is Careystone Corrugated continued over the openings, as neither the corrugations nor sheet laps in the course over the opening will match up properly. Do not attempt to measure across the opening and then try to calculate the location of the corrugation to precede erection on the other side of the opening in the same course for it would be improbable that the corrugation would work out correctly with the course over the opening.

DETAILS OF METHOD NO. 2

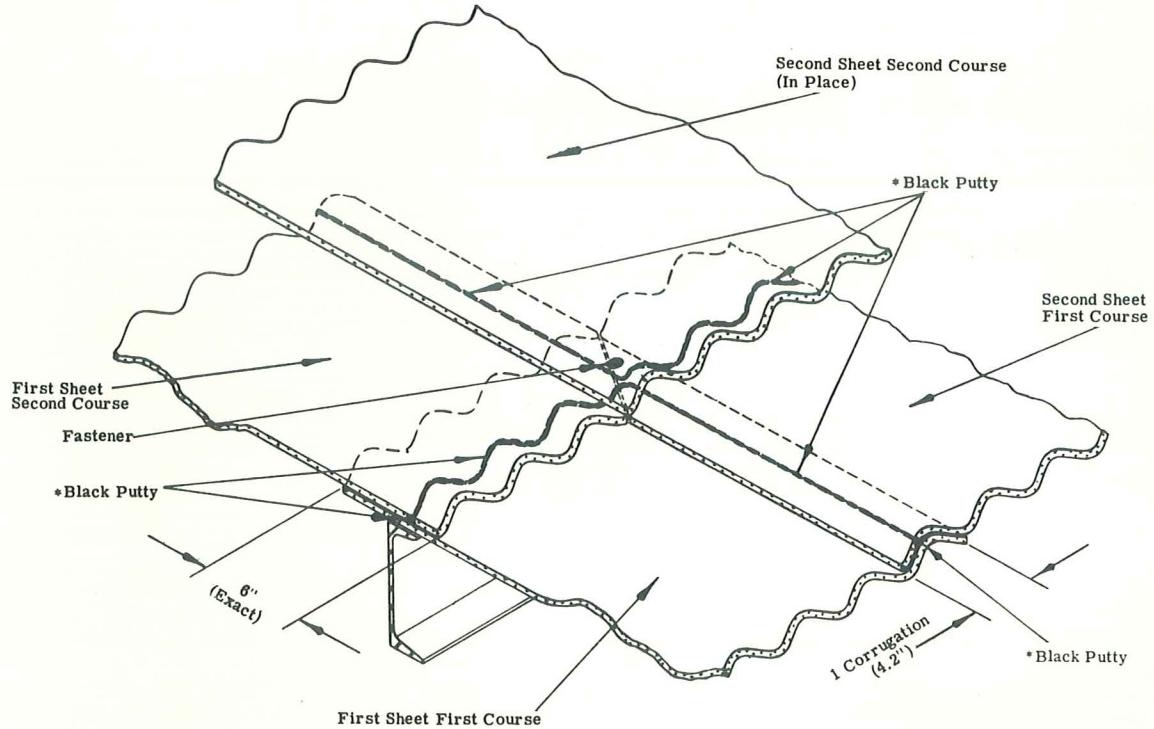


LAYOUT OF CUT CORNER (STRAIGHT LINE) APPLICATION
METHOD NO. 2

DETAILS OF METHOD NO. 2 (CONTINUED)



CORNER DETAIL OPEN



* (Not Required on Siding)

CORNER DETAIL CLOSED

BATTEN SIDE LAP CONSTRUCTION — METHOD NO. 3

(Butted side joints with battens and overlapping end laps)

The batten side lap with overlapping end lap method of application can be used for both roofing and siding -- it is used more for siding than roofing.

This method of application is specified when an exceptionally attractive type of corrugated construction is desired. It lends itself to the more modern type of architecture as the battens add to the straight line vertical construction. The offset end laps of the battens give an attractive shadow effect.

This method of application has the advantage of each sheet resting on the supporting members flush for the entire width of the sheet - except at the lower edge that laps on the preceding sheets forming the end lap. In the first two methods of application described, the sheets are elevated about $3/8"$ on one side where they overlap the previous sheet one corrugation. Because of this $3/8"$ elevation, the outside batten method of application is often used with insulated corrugated wall construction (Carey Thermo-Wall) which employs the use of Carey Thermo-Bord behind the corrugated sheets. (See pages 50 & 51).

The batten side lap method of application is more costly than either method one or method two. More corrugated materials are required to cover an area than with either method No. 1 or No. 2 and the quantity of fasteners is increased. The additional materials and fasteners to handle and install also increase the erection cost.

The batten side lap method of application consists of applying the sheets with butt side joints which are covered with Careystone Corrugated battens two corrugations wide with the end laps of both the sheets and battens overlapping, sheets overlap each other $6"$ and battens overlap $4"$.

The first sheet applied is at the lower left corner of the elevation. Full width sheets are used throughout the entire area, except around openings and at the end of each course which will require cutting to size in the field.

This first sheet must be placed to be true in line, having allowed the required rake and eave or curb overhang. Rake or eave overhangs should not be more than $12"$. Curb overlap to be as specified on architectural plans or on Carey layout if sheets do not rest on a ledge built in the curb. When there is to be an overhang at the eave or curb, it is recommended that a guide line be stretched so that the bottom edge of each sheet is trued with it and forms a perfect line. If the area to be covered is siding and there is an open area underneath it, or some other material to be erected later, it is recommended that a guide line be stretched so that the bottom edge of each sheet is true and in a perfect line. The upper part of the first sheet must extend at least $3"$ above the top most edge of the steel member regardless if the legs are turned up or down.

Fasten the lower end of the sheets to the lower supporting member using a fastener assembly in the crest of the fourth and seventh corrugations. If there are intermediate members, fasten to each of them through the crest of the fifth corrugation. Do not fasten the top of the sheet at this time if there are more courses of sheets to be applied.

The second sheet is butted against the first sheet and held in place but not fastened. The two corrugation batten is placed over the butt joint and the second sheet lined up so that the batten nests perfectly with the edge corrugations of both sheets. It may be necessary to open the butt joint between the sheets since corrugated sheets are slightly undercut on the outside corrugations. The batten used on the first course must be at least $6"$ shorter than the sheet (this is equal to the amount of sheet end lap). The bottom edges of the batten and sheet are lined up with the bottom edge of the first sheet. These are lined up with the guide line if they do not rest on a curb. If roofing, Carey Black Putty must be applied on the edge corrugation of both sheets located $1/2"$ from the crest of the corrugation toward the body of each sheet.

Fasteners are located at the lower member through the crests of the two corrugations of the batten and in the fourth and seventh corrugations of the sheet. If there are intermediate members, fasten to all of them through the crests of the two corrugations of the batten and in the crest of the fifth corrugation. Seam bolts must be used on both roofing and siding in the crests of both corrugations of the batten mid point between all supporting members. Do not fasten the top of the sheets unless there is only one course of sheets in the elevation. If there is only one course the length of the batten is the same length as the sheet.

Succeeding sheets in the first course are installed as described for the second sheet. In each case the sheet must be spaced to match the overlapping batten of the preceding sheet. The last sheet in the course must be cut to required width in the field. On roofing, be sure to allow the approximate same rake overhang as on the other end of the building and cut the sheet in the vale of the corrugation nearest to the dimension of the overhang.

The first sheet in the second course is a full width sheet. The outside edge of the sheet must line up perfectly with the outside edge of the sheet in the first course. The right bottom edge of the sheet puts the top edge of one corrugation of the batten. The top of the sheet must extend at least $3"$ above the uppermost part of a supporting member.

The first sheet is fastened in the crest of the fifth corrugation at the bottom and all intermediate members. The fastener at the bottom will pass through that sheet and the top part of the sheet under it.

DETAILS OF METHOD NO. 3 (CONTINUED)

A chalk line should be snapped across the battens exactly 4" from the top edge of the battens. It should be snapped across all the battens in the first course. This is the line on which the bottom edge of the overlapping battens should be located.

The second sheet is butted to the edge of the first sheet and overlaps the top of the sheet in the first course having the bottom right and left edges resting against the battens applied on the first course. Prior to securing this second sheet the two corrugation batten is placed over the butt joint having the lower edge of the batten overlapping the batten in the first course to the chalk line which is 4". The top edge of the batten stops 6" from the top edge of the sheet. Battens are always furnished 2" less than the sheet length used in the course except in the top and bottom courses.

After the batten is located and the sheet placed to nest the batten perfectly, fasteners are then placed through the crests of the two corrugations of the batten at the lower and intermediate members and also through the crest of the fifth corrugation of the sheet at lower and intermediate members.

Seam bolts must be used in the crests of both corrugation of the batten, midway between all supporting members.

If roofing, Carey Black Putty must be placed on the edge corrugations under the batten as described above for first course and also in the end laps of the sheets and battens.

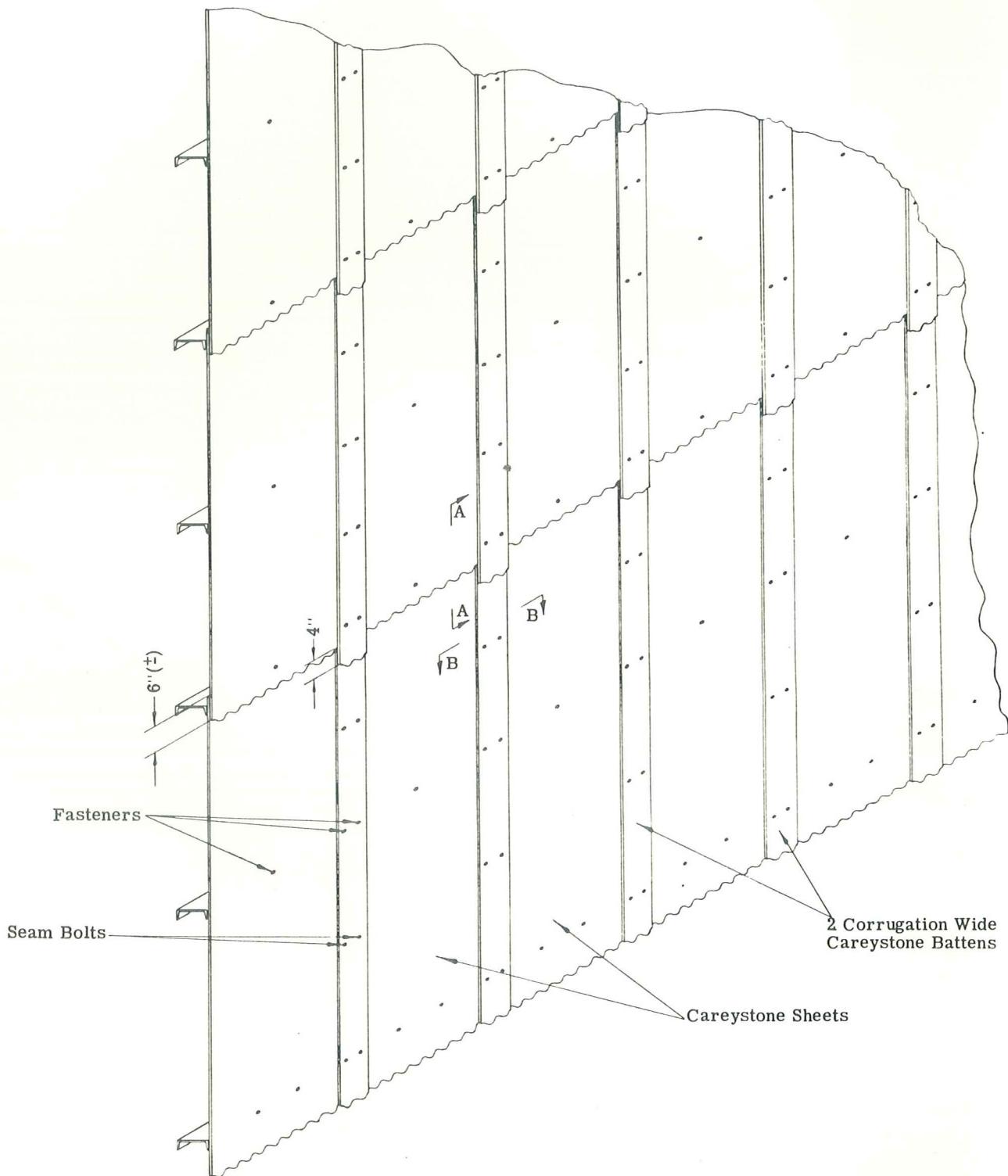
The top ends of this course of sheets are not secured at this time if there are additional courses. If there are not additional courses the battens are furnished to extend to the top edge of the sheets which require them furnished 4" longer than the sheets in the top course.

Succeeding sheets in the second course are applied in the same manner as described for the second sheet in that course--the last sheet is cut in the field to line up with the outside edge of the last sheet in the first course.

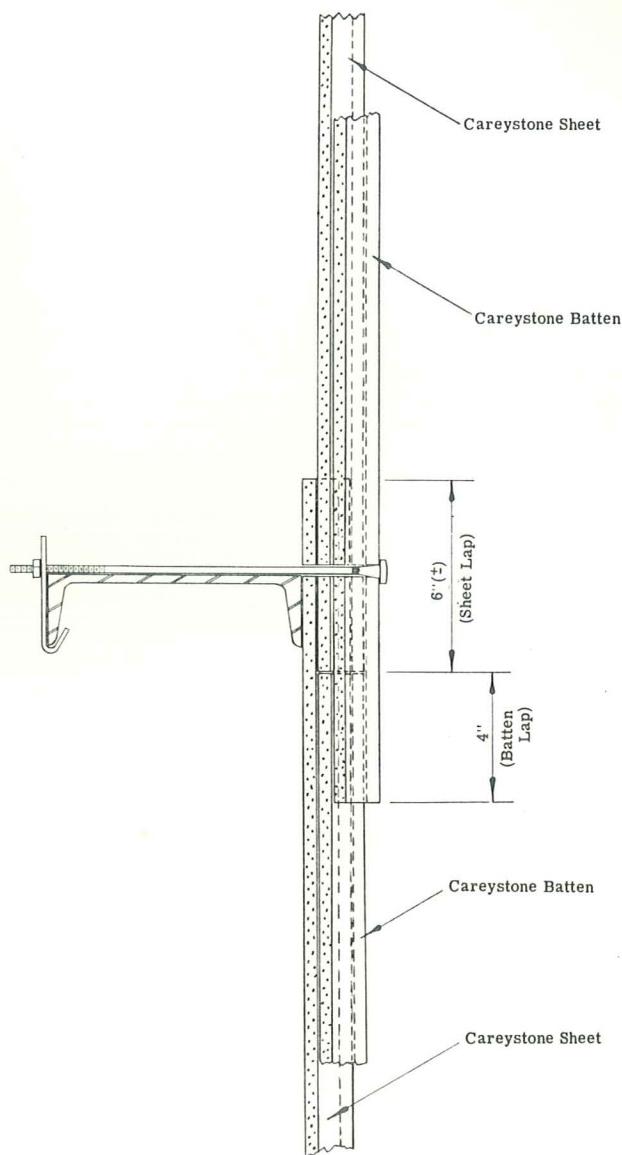
Subsequent courses are applied in same manner as the second course. The last or top most course is applied in the same manner as the second course except that the battens are even with the top of the sheets and the top row of fasteners are installed when the battens and sheets are secured to the other members. At the top member, fasteners are located in the crests of both corrugations of the batten and in the crests of the fourth and seventh corrugations of the sheets.

On areas having openings such as doors, duct openings, skylights or areas where some other type of material is employed, Careystone Corrugated can only be applied up to the opening even if that course should continue on the other side of the opening. Prior to continuing that course on the other side of the opening, it is necessary to install succeeding courses first, including the course that runs over the opening. This course is carried over the opening until a part of a full sheet extends beyond the opening. This determines the butt joint line and batten line of the sheets on the right side of the opening. Sheets cut to the width of the distance of the butt edge line and the opening are used down the right side of the opening. Full width sheets butted to these narrow sheets are used in each course until the next opening where the same procedure must be followed. Never start with a full width sheet at the right side of an opening if there is Careystone over the opening as neither the corrugations nor battens in the course over the opening will match up properly. Do not attempt to measure across the openings and then try to calculate the location of the edge of the sheet and the width of the sheet required for it would be improbable that the sheets would line up with the course of sheets over the opening.

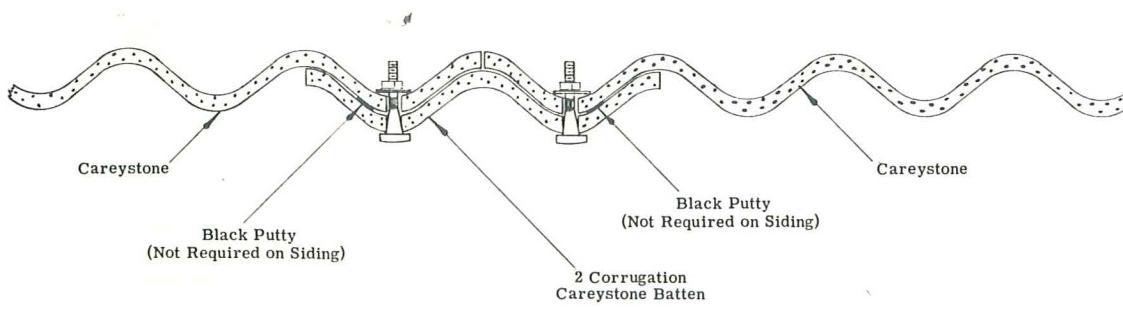
DETAILS OF METHOD NO. 3



DETAILS OF METHOD NO. 3 (Continued)



SECTION A A



SECTION B B

BUTT JOINT METHOD OF APPLICATION — METHOD NO. 4

This method of application uses butt joints at all sides and ends of sheets. It is recommended only for side wall use, not for roofing.

This method eliminates all side laps, end laps or battens on the outside surface.

It offers a very attractive outside appearance since all sheets have the tops of the corrugations flush with each other.

The sheets are applied with butt joints using 6" in height battens (having the corrugation running the 6" direction) under the end joints and two corrugation wide battens under the side joints. Strips of corrugated 6" in height must also be used over all intermediate girts to bring the surface of the supporting members of the corrugated sheets in the same plane at all members.

The sheets used are all full width, ten corrugation sheets 42" wide and application is started at the lower left corner.

The outside edge of the first sheet is lined up with the edge of the area requiring coverage or with the girt line of the adjoining side.

If the sheet does not rest on a ledge built into the curb, the sheet must overlap the curb as indicated on the architectural plans or on the Carey layout.

If there is a curb overlap, a chalk line should be snapped on the curb as a guide to which to line up the bottom edge of the first course of sheets. If the bottom edge of the sheets are located where there is an open area underneath them, or where some other materials may be erected later, it is recommended that a guide line be stretched so that the bottom edge of each sheet is true and in a perfect line.

If there is an offset in the curb in line with the girts for the sheets to rest on, a corrugated filler piece must be placed behind the sheet in the offset. At the first sheet this piece is nine corrugations wide and 3" in height. If a curb angle is located on the concrete curb the height of the corrugated filler must be increased so that it extends at least 1" above the top leg of the angle and it is lined up with the outside edge of the sheet. The corrugated asbestos filler piece used in the curb offset behind the other sheets in the first course are eight corrugations (33.6") long and are placed in back of the second to ninth corrugations inclusive of the sheets.

The sheets must be furnished so that the sheets in the first course and all subsequent courses, except top course, lap on a girt exactly at the mid-point of the bearing surface (on the girt line) of the girt. The sheets in the last or top course must be the correct length to close the elevation at the roof line or top of the area requiring corrugated coverage.

At the girts where sheets butt, inside battens of corrugated are used behind the sheets and are 6" in height. At the edge of the elevation behind the first sheets, the first pieces used are five corrugations (21") in length. All other inside battens on these girts are ten corrugations (42") in length. This makes the butt joints of the inside batten pieces fall in the mid-point across the sheets. These are placed so that 3" of the Careystone battens extend or overlap both the top and bottom sheet.

At all intermediate girts (where there are no end sheet joints) Careystone asbestos filler pieces must also be used. These pieces are furnished 6" in height and the pieces used behind the first sheets in each course are nine corrugations (37.8") long. These pieces are lined up with the outside edge of the sheet and placed directly over the girts so that the top fasteners will pass through the Careystone filler pieces 2"

below the top edge. On the intermediate girts and filler pieces used with all other sheets in the courses are eight corrugations (33.6") long. These are placed behind the sheets from the second corrugations to the ninth corrugations inclusive.

At the vertical joints, two corrugation battens are used behind the corrugated sheets. These are furnished to exact lengths so that they will butt against the edges of the horizontal battens that are continuous at the girts where the ends of the sheets butt. The eight corrugation fillers at the intermediate girts will butt into the sides of the vertical battens.

In the first course the vertical batten extends to the bottom of the sheets and up to the bottom edge of the continuous horizontal batten at the girt where the sheets butt.

Fasteners used on this type of construction are located as follows: At the bottom girt of the elevation, top most girt or eavestrut, at sash and door heads, sash sills and tops and bottoms of openings, fasteners should be in the crests of the first, fourth, seventh and tenth corrugations of each sheet.

At all other girts the fasteners are located in the crests of the first, fifth and tenth corrugations of each sheet, using two fasteners at each member with one fastener to the top of the member and the other to the bottom of the member.

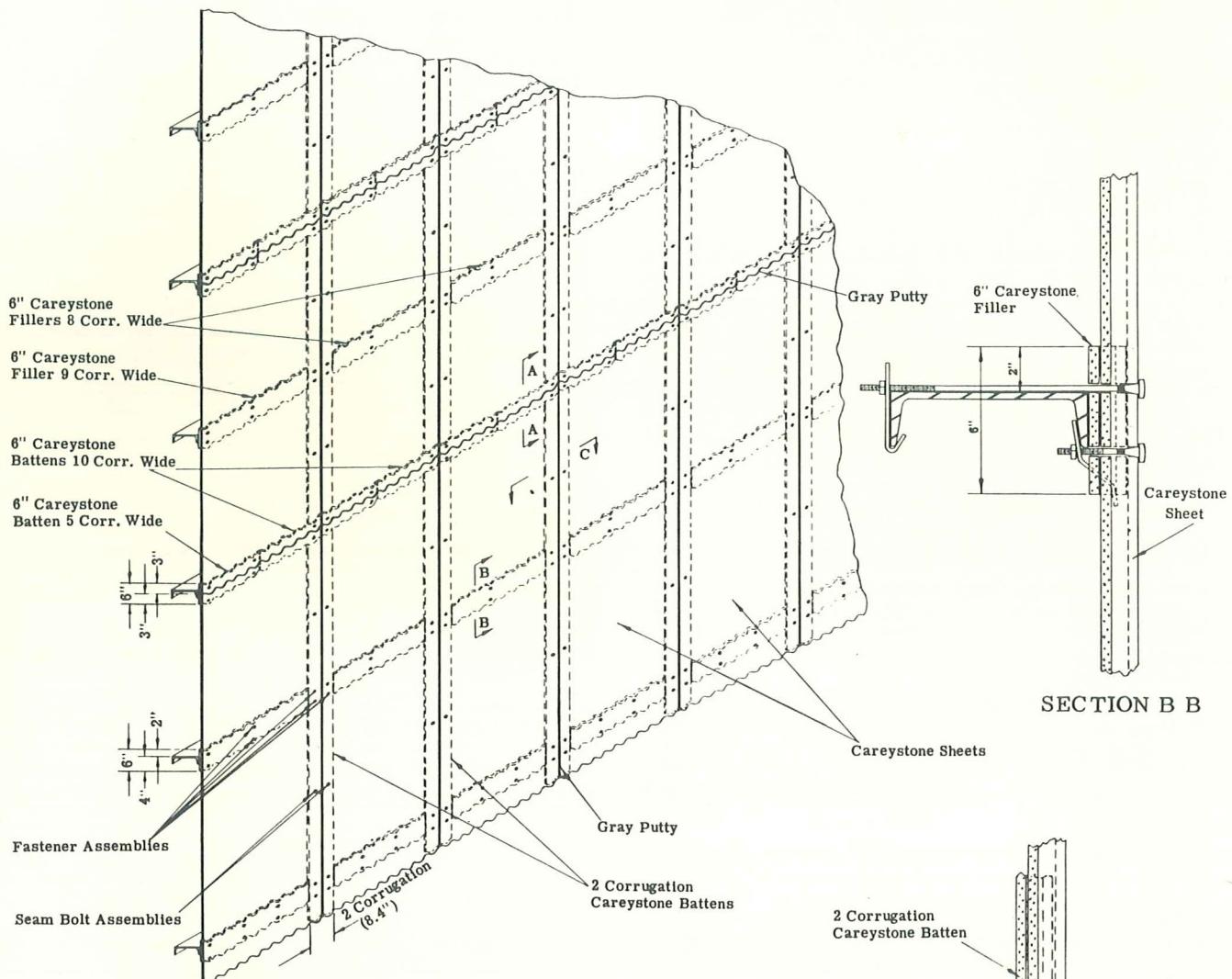
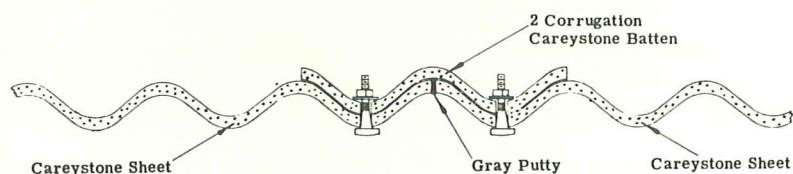
At the vertical butt edges, seam bolts must be used in the crests of the first and tenth corrugation of each Careystone sheet. These are located midway between each girt.

In this construction, all fasteners and seam bolts always pass through the corrugated filler pieces or battens underneath the sheets. When putting the sheets in place it is necessary to locate the sheets into the battens so that the sheets and battens nest perfectly, since Careystone sheets are furnished with the edge corrugations slightly under cut. This prevents the sheets from butting tightly at the edges. In this construction the butt end joints and butt side joints are sealed with a 1/4" bead of Carey Gray Roof Putty applied with a gun. The putty in the horizontal joint should be applied prior to putting the sheets in place.

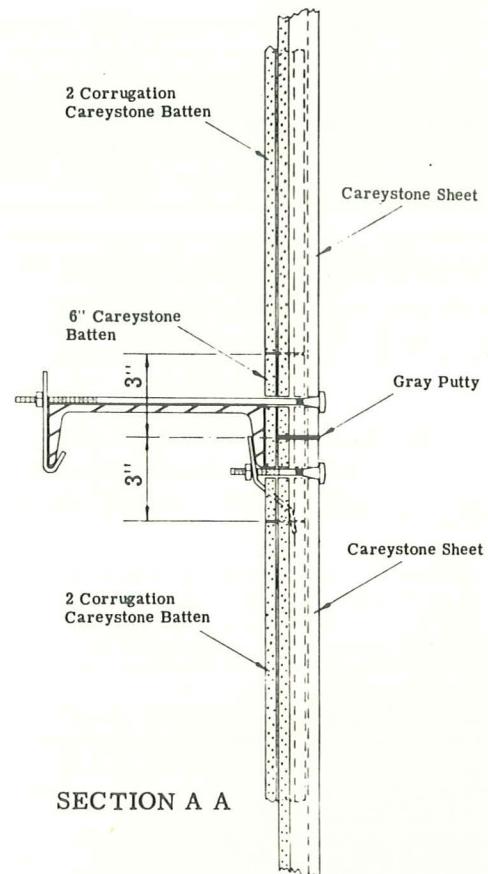
The slight opening between the sheets at the side butt-joints offers a better and larger area to which the putty can bond. All excess putty on the outside surfaces of the sheets should be removed so that a uniform, unbroken outside Careystone Corrugated wall surface is obtained.

On areas having openings such as doors, duct openings or areas where some other type of material is employed, the Careystone can only be applied up to the opening, even if that course should continue on the other (right) side of the opening. Prior to continuing that course on the other side of the opening, it is necessary to install succeeding courses first, including the course that runs over the opening. This course is carried over the opening until a part of a full sheet extends beyond the opening. The edge of the extending sheet with the two corrugation batten under it determines the location of the batte and width of sheet to be used next to the opening on the right side. Sheets of that width and corrugated fillers are applied down the edge of the opening and then application is continued on the first course. Full width sheets are used in each course until the next opening, where the same procedure must be followed. Never start with a full width sheet at the right side of an opening if there is corrugated asbestos over the opening, as neither the corrugations nor sheet joints in the course over the opening will match up properly. Do not attempt to measure across the openings and then try to calculate the location of the edge of the sheet and the width of the sheet required for it would be improbable that the sheets would line up with the course of sheets over the opening.

DETAILS OF METHOD NO. 4

BUTT JOINT APPLICATION WITH CAREYSTONE BATTENS
AND FILLERS-ELEVATION METHOD NO. 4

SECTION C C



SECTION A A

BUTT JOINT UNIFORM SHEET LENGTH METHOD OF APPLICATION — METHOD NO. 5

This method of application uses butt joints at all side and end laps of sheets. All sheets on the entire elevation, with the exception of sheets under, over or between sash or openings, are the same length. It is recommended only for side wall use, not for roofing.

This method eliminates all side laps, end laps or battens on the outside surface.

Buildings having this method of side wall application are very attractive since all the sheets have the tops of the corrugations flush with each other. The corrugations are continuous and in the same plane on the entire elevation. All the sheets on the elevation except sheets above, below or between openings are the same length and give a very uniform appearance.

Sheets are furnished in one length from 8'-0" to 12'-0" whichever length works out uniformly for the entire height for the elevation. The same length of sheets is used on all the elevations of the building to carry out the uniformity of this construction. The appearance of this type of application conforms with the most modern type of architecture.

The ends of the butting sheets must not butt over girts. The steel is so designed so that no girts are within one foot of the butt end joints of sheets.

Careystone Corrugated battens 12" long are used in back of the butt joints at the ends of the sheets. These are placed so that 6" extends under the bottom and top sheet.

At the side butt-joints metal flashing strips are used under the butt joints. These can be made of any easily worked metal such as 8 or 16 oz. copper, 2-1/2# lead or light gauge galvanized iron, monel or stainless steel.

Flashing strips should be about 1-1/2" wide having 1/4" of each side slightly turned up. These are furnished in a convenient length by the sheet metal contractor as the size of the contractor's break will govern available length. These metal pieces are installed so that the upper piece overlaps the lower piece about 2" and is in front of the lower piece. At the end joints of the sheets these metal strips are continuous and are between the sheets and the battens. Being soft material they will conform to the corrugations under the battens.

The first sheet is applied at the lower left corner. It is located with the outside edge lined up with the edge of the area requiring coverage or with the girt line of the adjoining side.

If this sheet does not rest on a ledge built into the curb, the sheet must overlap the curb as indicated on the architectural plans or on the Carey layout. If there is a curb overlap, a chalk line should be snapped on the curb as a guide to which to line up the bottom edge of the first course of sheets. If the bottom edge

of the sheets are located where there is an open area underneath them, or some other material to be erected later, it is recommended that a guide line be stretched so that the bottom edge of each sheet is true and in a perfect line.

The first sheet is fastened at the lowest girt in the crest of the first, fourth and seventh corrugation and at all other girts in the crests of the first and fifth corrugations. At the top of the sheet a 12" long piece of Careystone, five corrugations (21") wide, is placed so that it lines up with the outside edge of the sheet and laps down behind the sheet 6". This is secured by seam bolts located 3" down from the top of the sheet in the crests of the first and fourth corrugations of the sheet.

The 1-1/2" wide vertical metal strip is now slid under the inside edge of the sheet. These pieces may not be as long as the sheet, in which case the upper piece should be placed so that it laps the lower piece about 2". The lapped area has the upper piece in front (toward the outside of the wall) of the lower piece. This metal strip acts as a vertical joint batten as the edge of the next sheet in the course will rest on it. The second sheet is lined up with the bottom edge of the first sheet and the guide line, but not fastened until the 12" long, 42" wide batten is put in place at the top of the sheet to assure perfect nesting of the corrugations of the batten and the sheet.

This 12" long, 42" wide horizontal batten butts the preceding 12" long by 21" wide batten about half way across the top of the first sheet and extends across the butt joint of the next sheet, terminating about half way across the next sheet. This 12" long batten is placed over the metal vertical batten and when fastened with seam bolts the metal batten will take the contour of the corrugations when tightened up. This batten is bolted to the first sheet by using a seam bolt assembly in the crest of the seventh corrugation of the sheet - 3" from the top edge of the sheet. Fasteners in the second sheet in this first course are located at the lowest girt, in the valley through the butt joint of the first and second sheet, also going through the center of the vertical metal batten. Fasteners are also located in the crests of the fourth and seventh corrugations. At all intermediate girts, fasteners are located in the valley through the butt joint of the first and second sheet, also going through the center of the vertical metal batten. Fasteners are also located in the crest of the fifth corrugation on all intermediate girts.

At the top of the sheet there is a row of seam bolt assemblies across the sheet 3" down from the top edge of the sheet, which in all cases, except the top course, passes through the 12" long corrugated batten. A seam bolt assembly is located in the valley through the butt joint of the first and second sheet. It goes through the center of the metal vertical batten and the corrugated horizontal batten. Additional seam bolt assemblies are located in the crest of the fourth cor-

METHOD NO. 5 (Continued)

rugation of the sheet which pass through the sheet and the corrugated batten.

Seam bolt assemblies must also be used mid-point between each girt (except where horizontal corrugated batten is near the mid-point) located in the valley through the butt joint of the sheets and the metal vertical batten.

A 1/4" bead of Carey Gray Roof Putty applied with a gun is forced into the vertical butt joint, applied from the outside of the building. Since sheets are slightly undercut in width and when applied are trued up with the corrugated horizontal battens, this slight opening at the vertical butt joint is an advantage as it offers a better and larger area to which the putty can bond. All excess putty on the surfaces of the sheets beside the butt joint should be removed.

Succeeding sheets in the first course are applied and secured in the same manner as described for the second sheet.

The first sheet in the second course and first sheets in subsequent courses are full width sheets and have the outside edge lined up with the edge of the first sheet. The bottom edge of these sheets butt the top edge of the sheets in place. The 12" long battens will extend 6" up behind the bottom edge of the sheets. The top edge of the first sheet in place has a 1/4" bead of Carey Gray Roof Putty placed on it next to the batten which will seal the horizontal joint when the next sheet above it is put in place. The first sheets are secured to all girts by fasteners located at the crests of the first and fifth corrugations. Seam bolt assemblies are used 3" above the bottom edge of the sheets passing through the sheet and corrugated batten at the crests of the first and fourth corrugations. At the top outside edge of the first sheets, corrugated battens 12" long and 21" wide are secured to the sheets placing the edges of the battens on the outside edges of the sheets. These battens extend 6" down from the top edge of the sheets. Seam bolt assemblies are used and located in the crests of the first and fourth corrugations.

The second and succeeding sheets, in all courses except the top course, are put in place butting the edge of the preceding sheet in the course and with the bottom edge butting the top edge of the sheet in place. The top edge of the sheet in place has the 1/4" bead of gray putty applied. Prior to placing second and succeeding sheets the 1-1/2" wide vertical metal batten is slid under the inside edge of the preceding sheet that has been secured. These pieces of metal may not be as long as the sheet, in which case the upper piece should be placed so that it laps the lower piece about 2". It is lapped so that the upper piece is in front (to outside of wall) of the lower piece.

No fasteners are put into the sheets until the sheets have been lined up to nest perfectly with the corrugated horizontal battens at the bottom and top. The top corrugated batten which is 12" long and ten corrugations

wide (42") butt the preceding batten about half way across the preceding sheet and extends about half way across the area in which the next sheet will be applied. The sheet must mesh perfectly with both the top and bottom battens,--it should not just be butted next to the edge of the preceding sheet.

The second sheets and following sheets in each course except top course are fastened to all girts by locating fasteners in the valley through the butt joint of the sheet already in place and the sheet being fastened. This fastener will also go through the center of the 1-1/2" wide vertical batten. Fasteners are also located at all girts at the crests of the fifth corrugation. At the top of the sheets (except in top course) there is a row of seam bolt assemblies across the sheet 3" down from the top edge to secure the corrugated battens. These are located in the valley at the butt joint of the two sheets, going through the metal batten and the corrugated batten. Tightening this fastener will make the metal batten conform to the corrugations since it is located between the corrugated sheet and corrugated batten. Additional seam bolt assemblies are located in the crests of the fourth and seventh corrugations.

Seam bolt assemblies must also be used mid-point between each girt (except where horizontal corrugated batten is near the mid-point) located in the valley through the butt joint of the sheets and the metal vertical batten.

In the top or last course of sheets in the area, the sheets are applied in the same manner as in the preceding courses, except that the 12" long batten is not used at the top of the sheets since it is not needed. At the top-most girt or eave strut, fasteners are also located in the valley at the butt joints of the sheets and in the crests of the fourth and seventh corrugations.

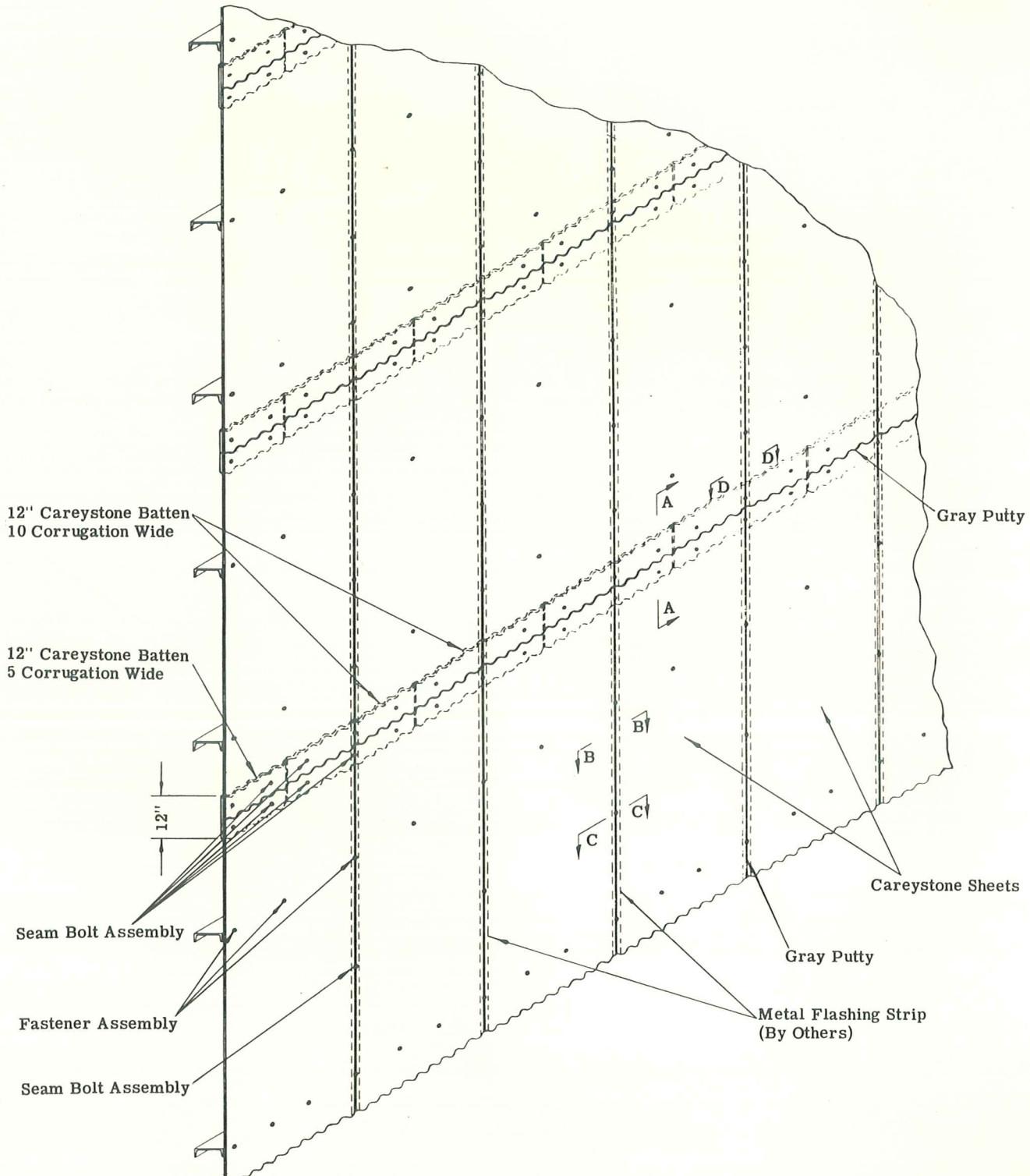
At sash and door heads, sash sills, tops and bottoms of openings, fasteners should be located in the valley at the butt joints of the sheets and in the crests of the fourth and seventh corrugations.

On areas having openings such as doors, duct openings or areas where some other type of material is used, the Careystone Corrugated can only be applied up to the opening even if that course should continue on the other (right) side of the opening. Prior to continuing that course on the other side of the opening, it is necessary to install succeeding courses first, including the course that runs over the opening. This course is carried over the opening until a part of a full sheet extends beyond the opening. The edge of the extending sheet, establishes the width to which the sheets in the course or courses at the right side of the opening are cut. This will make all the butt edge joints line up. The sheets next to the first narrow sheet in each course will be full width sheets up to the next opening where the same procedure must be followed.

DETAILS OF METHOD NO. 5

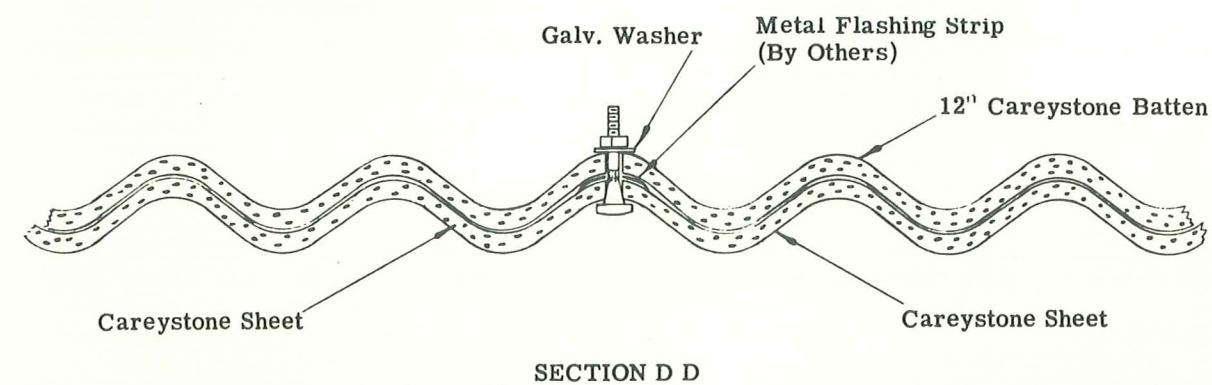
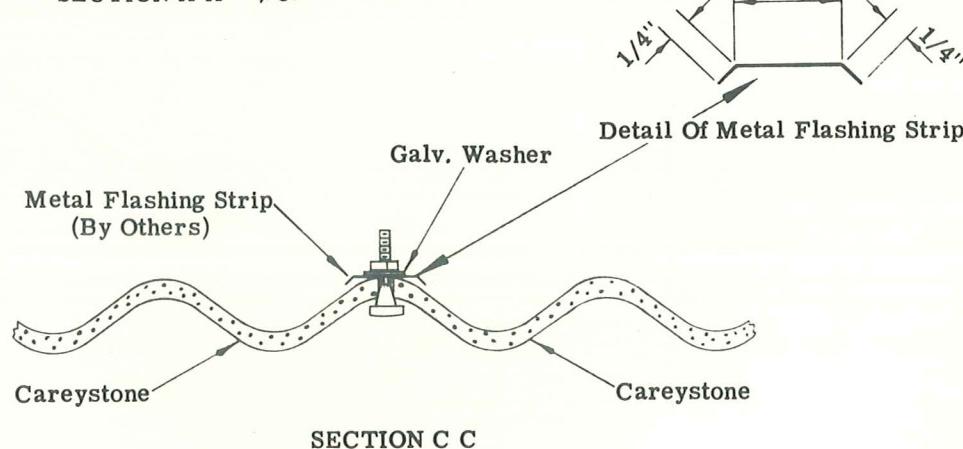
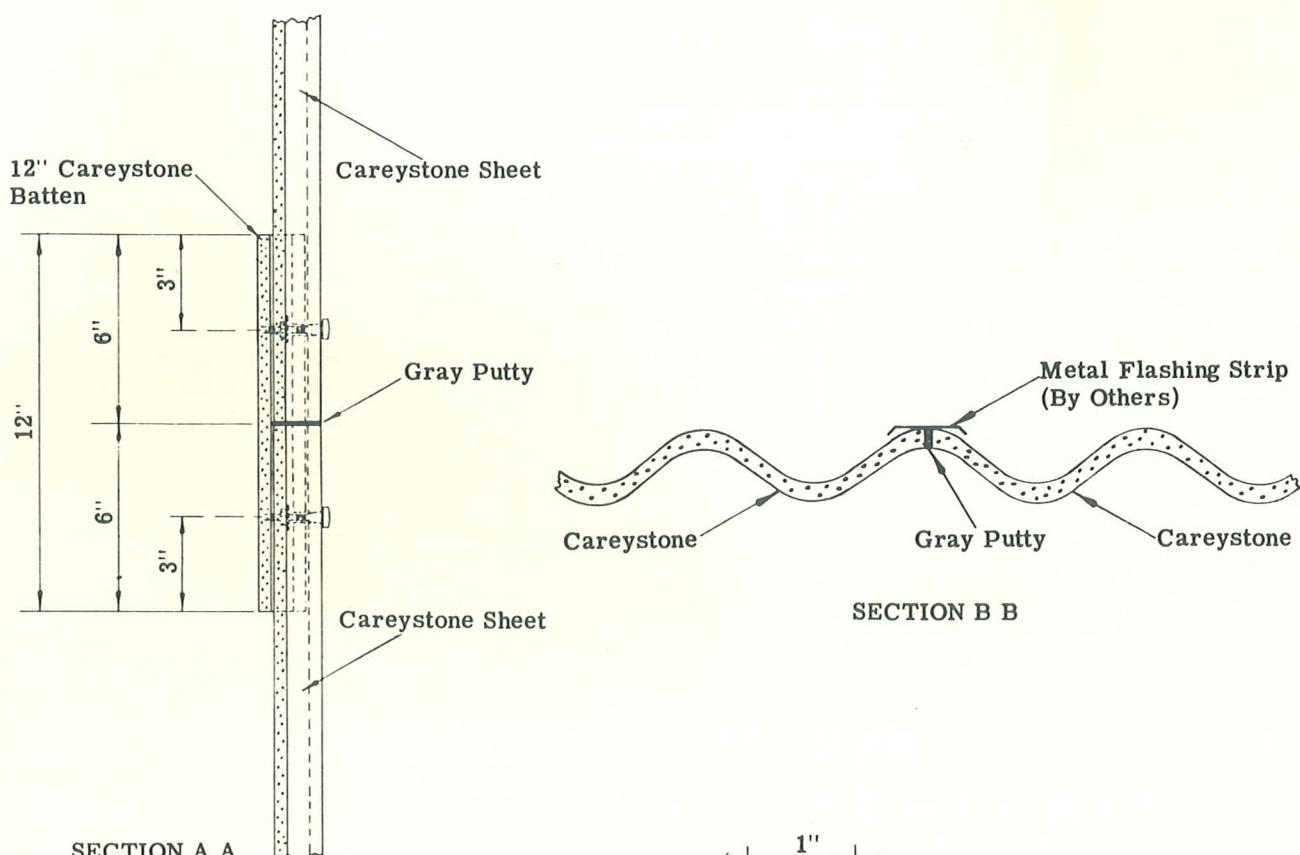
Never start with a full width sheet at the right side of an opening if there is corrugated over the opening, as neither the corrugations nor sheet butt joints in the course over the opening will match up properly. Do not attempt to measure across the openings and then

try to calculate the location of the edge of the sheet and the width of the sheet required, for it would be improbable that the sheets would line up with the course of sheets over the opening.



BUTT JOINT APPLICATION - UNIFORM SHEET LENGTHS ELEVATION
METHOD NO. 5

DETAILS OF METHOD NO. 5



HORIZONTAL CORRUGATED APPLICATION

METHOD NO. 6

(Using one Corrugation Lap)

This type of application uses the Careystone Corrugated sheets with the corrugations running horizontal instead of vertical. It is ordinarily used only where the heights of the area or areas are not very great. It is used for the continuous straight line effect obtained to match the modern type of architecture using continuous rows of sash extending to the corners of industrial and commercial buildings.

It is employed mainly under sash to curb line, on spandrel construction (between sash) and/or for a decorative band around the top of a building.

For the most effective modernistic appearance with one corrugation laps, the bands of horizontal, Careystone Corrugated should not be over 6'-7-3/4" in height. They are often held to a height of 3'-6" to use the entire width of one 42" wide sheet. Used horizontally, this permits the entire sheet to be used and it will let the corrugations end in the vales against the building. Buildings designed for this use should always have the heights of the areas equal to some multiple of 4.2" so that the corrugations will start and stop in the valley of the corrugation at both the tops and bottoms of the areas.

Sheets are end butted with Careystone battens behind the joints. If the course is greater than 3'-6" the second sheet is lapped over the lower sheet one corrugation.

Vertical supports for securing the sheets should be on the same spacings as recommended for girts in standard application which is 5'-6" maximum.

Sheets are applied by starting at the lower left corner. Careystone filler pieces 6" wide (having the corrugations running the 6" direction) and 42" long must be placed behind the first course of sheets at all vertical supports.

At the ends of sheets where they butt, 3" of the 6" battens are under each of the butting sheets.

The first sheet applied is secured in the crests of the first, fourth, and seventh corrugations at all vertical supports. The fasteners always pass through the filler or batten pieces. The inside batten at the right end of the sheet is held to the sheet by the fasteners at the right vertical member, since sheets are furnished so that they end and butt directly in the center of a vertical supporting member. Fasteners in the first sheet at the right end are located to the left side of the vertical member.

The second sheet is applied butted against the end of the first sheet and overlapping the 6" long corrugated batten 3". At this butt joint the fasteners are located at the right side of the vertical support under the batten, passing through the sheet and the batten in the crest of the first, fourth, and seventh corrugations. Fasteners are placed in the same corrugation locations through

the sheet, filler pieces, right end batten, and also at all other vertical supports behind the sheet.

The remaining sheets in this course are installed the same as the second sheet.

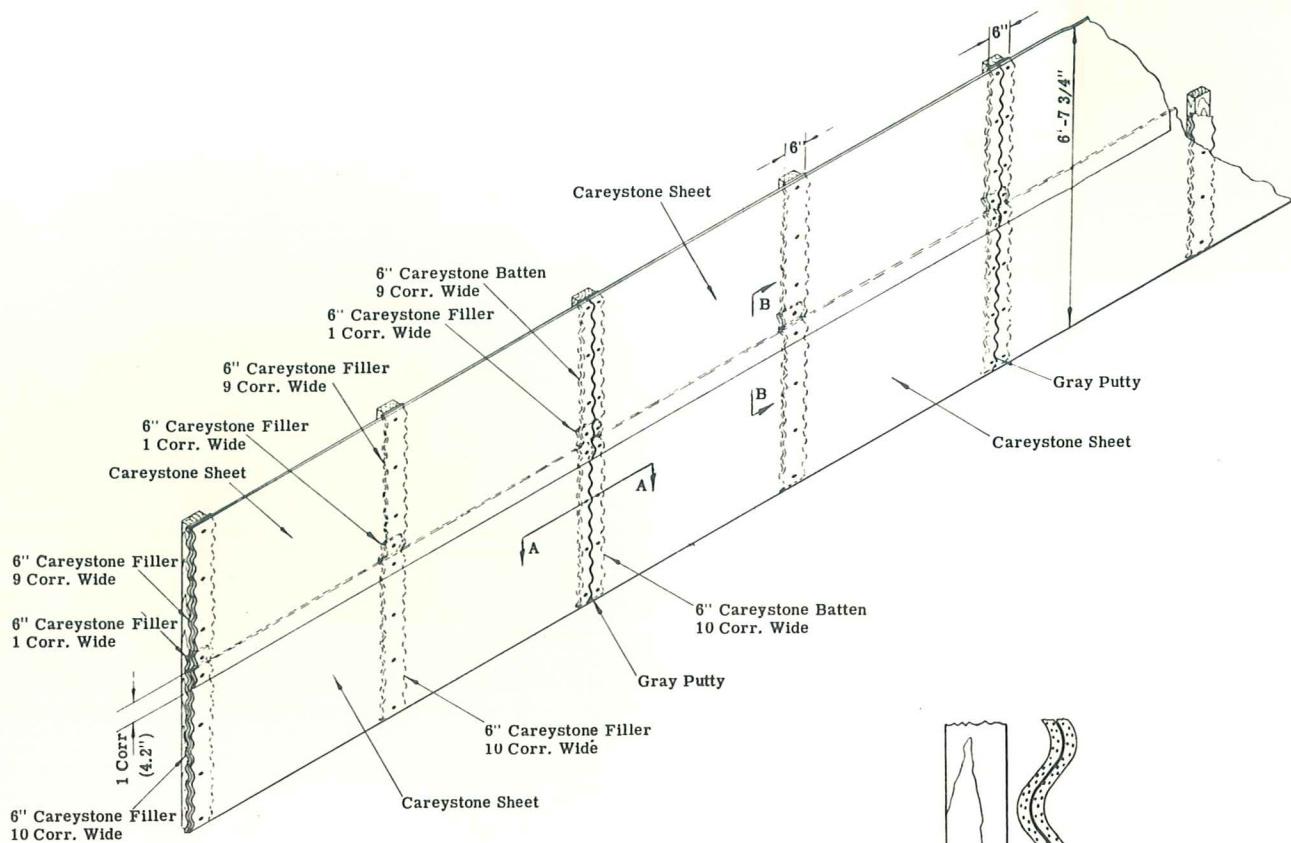
At the butt end joints, the sheets are set into a 1/4" bead of Carey Gray Roof Putty placed on the edge of the sheet next to the batten. All excess putty is removed from the surface of the sheets.

In starting the second course or row of horizontal Careystone, the 6" long filler and batten pieces are used one corrugation less in length than the width of sheets used. These are used over all vertical supports and they butt against the edge of the first row of sheets. One corrugation wide pieces 6" long are placed under the bottom corrugations of the battens and filler pieces. These one corrugation pieces have one edge butting next to the edge of the batten or filler pieces of the bottom course. These are required to hold the batten or filler pieces of the second course against the sheets. The second row of sheets are applied to overlap one corrugation of the first row of sheets. Fasteners are located in the crests of the first, second, fourth and seventh corrugations at all vertical supports. At the battens there are two lines of fasteners, with one row at the left side and one row at the right side of the butt joint of the sheets with both rows fastening to the same vertical member. In the second course of sheets the fastener in the crest of the first corrugation will go through that sheet, the tenth corrugation of the first course Careystone sheet and the filler or batten piece under it. The fastener in the crest of the second corrugation passes through the filler or batten piece and also through the one corrugation wide piece.

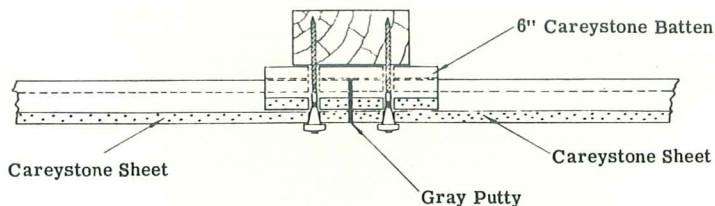
If this course is the last course in that area, fasteners should also be located in the crest of the top most corrugation at all vertical supports. End laps where sheets butt in this course should have a 1/4" bead of Carey Gray Roof Putty placed as described for the first course, and all excess putty on the surfaces of the sheets removed. No putty is required in the one corrugation overlap of the first and second course of sheets.

If there are additional courses or rows of sheets they are installed in the same manner as the second course. If for appearance, it is desired to eliminate the fasteners in the crests of the corrugations to give a uniform appearance on the tops of the corrugations, the fasteners may be located in the vales of the corrugations. They are then located in the valleys between the first and second corrugations, fourth and fifth corrugations, sixth and seventh corrugations and the eighth and ninth corrugations in all sheets of the first course. In succeeding courses, in the valleys between the first and second corrugations, second and third corrugations, fifth and sixth corrugations, seventh and eighth corrugations, and eighth and ninth corrugations. On the top row of sheets the top fastener is located between the top most and second last corrugation.

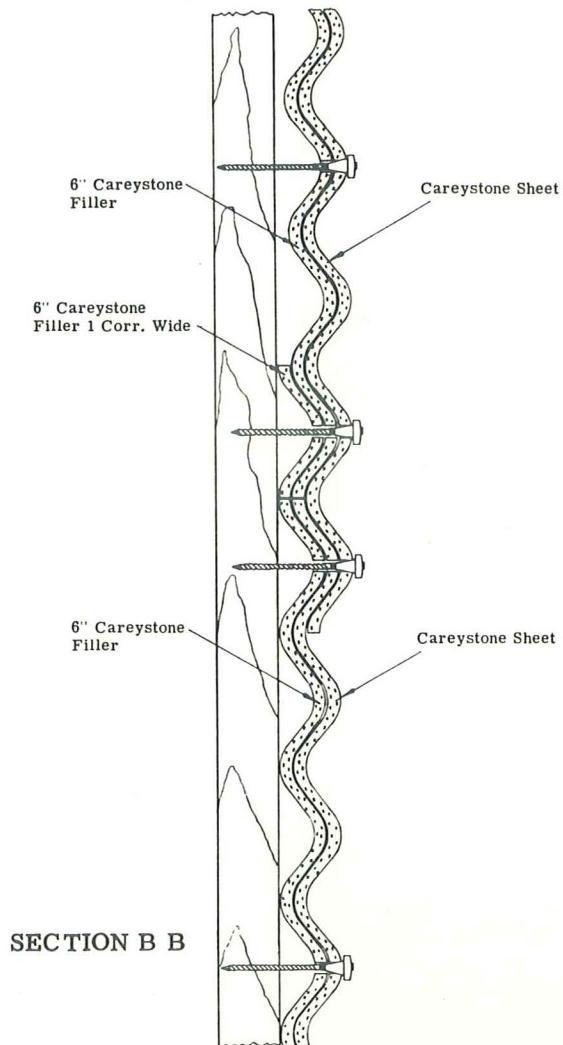
DETAILS OF METHOD NO. 6



HORIZONTAL APPLICATION BUTT ENDS
ONE CORRUGATION LAP - ELEVATION



SECTION A A



SECTION B B

HORIZONTAL CORRUGATED APPLICATION

METHOD NO. 7

(Using Butt Side and End Joints)

This type of application uses the Careystone Corrugated sheets with the corrugations running horizontal instead of vertical. It is ordinarily used only where the height of the area or areas is not very great. It is used for the continuous straight line effect obtained to match the modern type of architecture using continuous rows of sash extending to the corners of industrial and commercial buildings.

It is used mainly under sash to curb line, on spandrel construction (between sash) and/or for a decorative band around the top of a building.

For the most effective modernistic appearance the bands of horizontal corrugated should not be over 10'-6" in height. Buildings designed for this use should always have the height of the area equal to some multiple of 4.2" so that the corrugations will start and stop in the valley of the corrugation at both the top and bottom of the area.

Sheets are end and side butted with corrugated battens behind the joints. The end joints have 6" wide battens behind them with the corrugations running the 6" direction and the side joints have a two corrugation wide batten used under the butt joint.

Vertical supports for securing the sheets should be on the same spacings as recommended for girts in standard application which is 5'-6" maximum.

On the first course of sheets the filler and batten pieces are 6" long and 9 corrugations wide. Filler pieces are used under the sheets in front of all vertical members and also where the sheets butt. At the butt joints the filler pieces are identified as battens.

The first sheet is placed at the lower left side of the area to be covered, having filler pieces lined up with the bottom edge of the sheet. At the right end of the sheet where the next sheet will butt it, the 6" long corrugated batten is used. It is lined up with the bottom edge of the sheet and extends 3" behind the right end of the sheet and 3" beyond the end of the sheet. A two corrugation batten is used in back of the top edge of the sheet, having one corrugation behind the sheet and one corrugation extending above the sheet. This batten is furnished 6" longer than the sheet and thus extends 6" beyond the right end of the sheet. Only the first two corrugation battens in each course are furnished 6" longer than the first sheets. All other battens are furnished the same lengths as the sheets. The last batten in each course is furnished 6" shorter than the length of the last sheet. This sheet is secured to all vertical members with fasteners located in the crests of the first, fourth, seventh and tenth corrugations. These fasteners in all cases go through the sheet and filler pieces or batten pieces.

The second sheet is installed in the first course butting the right end of the first sheet and overlapping the extending 3" of the end batten. The upper left corner of the sheet will also have 6" on one corrugation of the extending horizontal batten under it.

The 9 corrugation 6" long filler and batten pieces are located under the sheet at all vertical supports and at the end of the sheet it is located to extend 3" beyond the edge of the sheet. The two corrugation horizontal batten is used

with one corrugation under one corrugation of the top edge of the sheet and is furnished the same length as the sheet. When butted with the two corrugation batten in place under the first sheet, it will extend 6" beyond the edge of the second sheet.

The second sheet is secured with fasteners in the crest of the first, fourth, seventh and tenth corrugations with fasteners going through the sheet and filler or batten pieces underneath. At the batten there are two rows of fasteners, one located to the right side of the butt joint and the other to the left side of the butt joint. Both fasteners secure to the same vertical member.

A 1/4" bead of Carey Gray Roof Putty is placed on the edge of the corrugated next to the batten on both the top and side, and the adjoining sheets placed into this putty. All excess putty on the surfaces of the sheets is removed.

Succeeding sheets in the first course are installed in the same manner as the second sheet.

If the second course of sheets is the last course or top course, the corrugated fillers and battens are one corrugation less in width, than the number of corrugations in the top course. If there are more courses of sheets above the second course the corrugated fillers and battens in the second course are eight corrugation wide pieces.

If the second course is not the top course, and the area has one or more courses, the first sheet has one corrugation at the bottom overlapping the one extending corrugation of the horizontal batten and the edge of the sheet butting against the horizontal edge of the bottom sheet. This sheet is set so that the one corrugation of the batten nests perfectly with the edge corrugation of the sheet. Since sheets are slightly undercut, it may open this horizontal butt joint slightly. A slight opening in the butt joints is an advantage because it offers a better and larger area to which the putty can bond. The 6" long, eight corrugations wide filler pieces are located over the vertical supports and are behind the sheet from the start of the second corrugation to the end of the ninth corrugation. These fit between the two corrugation horizontal battens. The end corrugated batten, which is also 6" long and eight corrugations wide, extends 3" beyond the sheet and is located between the horizontal battens, the same as the filler pieces.

The top horizontal batten extends 6" beyond the sheet and laps under the sheet one corrugation with the other corrugation of the batten extending above the sheet. Fasteners are located at each vertical support in the crests of the first, fourth, seventh and tenth corrugations. At the vertical batten two rows of fasteners are used on each side of the batten joint.

A 1/4" bead of Carey Gray Roof Putty applied with a gun is installed as the sheets are put in place, in the same manner as described for the first course. All excess putty on the surfaces of the sheets should be removed.

Succeeding sheets in the second course are applied as described for the first sheet in that course. Additional courses, except top course, are installed in the same manner as the second course.

METHOD NO. 7

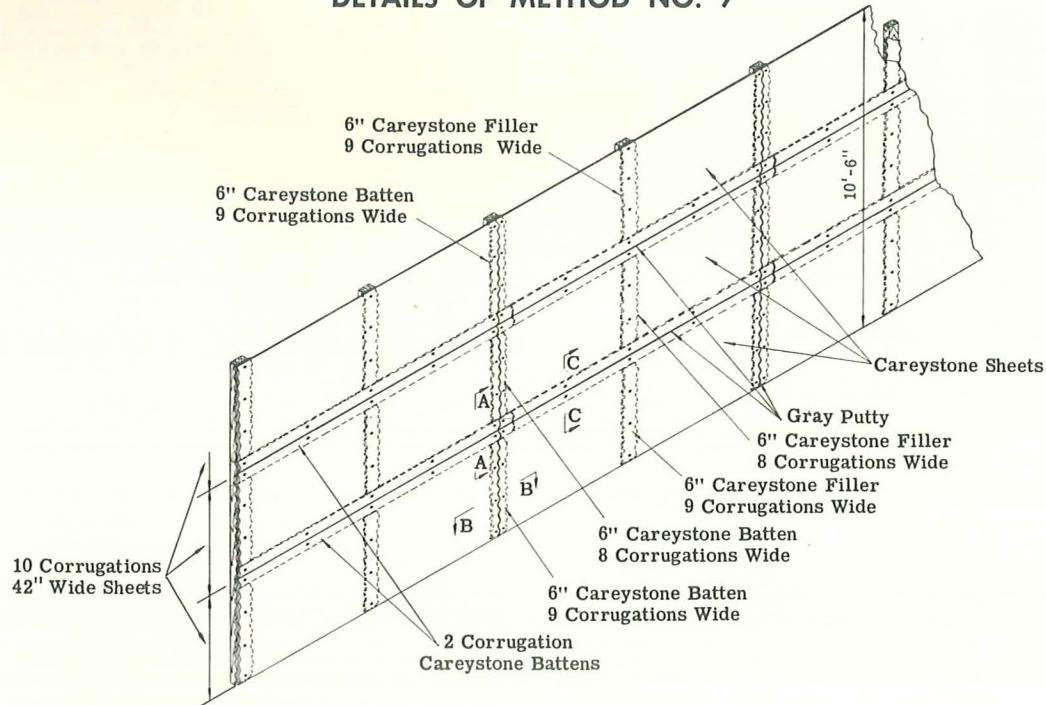
On the top or last horizontal course of sheets the corrugated batten is not required at the top and therefore the 6" long corrugated filler pieces and batten pieces are used one full corrugation less in width as the width of sheet used. Sheets are fastened in the same manner as sheets in the other course.

If, for appearance, it is desired to eliminate the fasteners in the crests of the corrugations to give a uniform appearance on the tops of the corrugations, the fasteners may be located in the vales of the corrugations. They are then located in the first course in the valley between the first and second corrugations, fourth and fifth corrugations, and seventh and eighth corrugations. In the second sheet, if it is not the top course, the fasteners are located in the valley

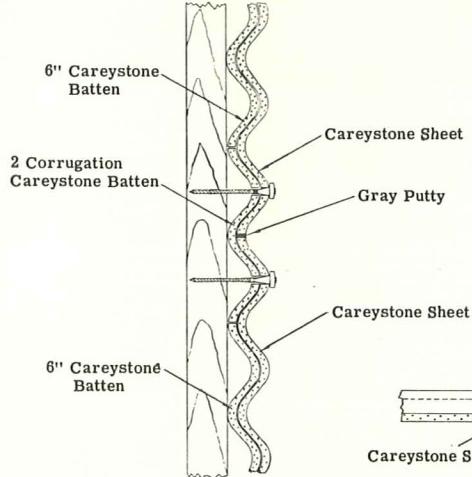
in the butt joint of the first and second sheet, in the valley between the third and fourth corrugation between seventh and eighth corrugation, and in the butt joint of the top edge of this sheet and the bottom of the next sheet.

Additional courses are fastened as described for the second course.

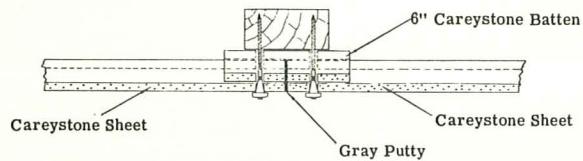
The last or top course would have a fastener in the butt joint of the sheets in the course below, the next fasteners in the sheets would be in the valley between the third and fourth corrugation, sixth and seventh corrugations and in the valley before the last corrugation or part of a corrugation. If the top sheet is a full width sheet then the fastener is located in the valley of the ninth and tenth.

DETAILS OF METHOD NO. 7

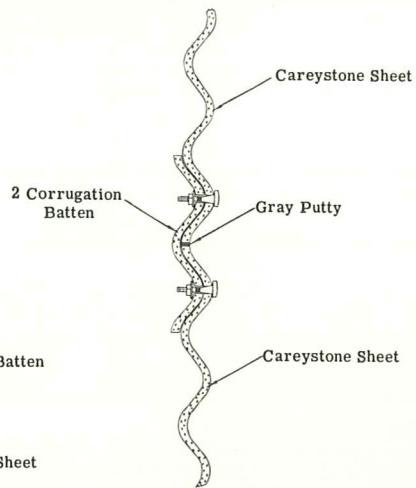
**HORIZONTAL APPLICATION BUTT SIDE AND END JOINTS - ELEVATION
METHOD NO. 7**



SECTION A A



SECTION B B



SECTION C C

CAREY THERMO-WALL CONSTRUCTION

(Using Careystone Corrugated Backed with Carey Thermo-Bord)

This construction offers an economical, light weight insulated wall. Careystone Corrugated gives it permanence and beauty on the exterior. The corrugated is backed with Carey Thermo-Bord which consists of at least 7/8" fiberboard insulation faced on two sides with 1/8" Asbestos-Cement Board. The 1/8" Asbestos-Cement Board is the finished interior wall surface. Thus both the inside and outside surfaces of the wall are asbestos-cement having a pleasing permanent gray-white appearance, fire resistance and maintenance free qualities.

Thermo-Bord can be furnished with greater thicknesses of fiberboard insulation as it is also available in 1-5/16" and 1-3/4" thicknesses, if more insulation value is desired. For thermo-wall construction the girt spacings may be placed up to and including 10'-0" when 1-9/16" or 2" overall thickness Thermo-Bord is used.

The Careystone and Thermo-Bord are applied on the outside of the steel and both materials are secured with the same fasteners passing through both materials.

Careystone is recommended to be applied with the two corrugation battens on the outside of the building over the vertical joints and with 6" end laps. This is identified as Carey Method of Application No. 3 as described on pages 36-39. (Method No. 1 on pages 28-31 or Method No. 2 on pages 32-35 may be used).

The Thermo-Bord sheets are 48" wide which staggers the vertical joints of the Thermo-Bord and corrugated sheets. On the Thermo-Bord the vertical butt joints between the girts on the inside of the building can be covered with 3/16" thick by 4" wide battens of Flat Asbestos-Cement Board. These battens are held in place by No. 10 x 1" Binding Head, Type A, Zinc plated sheet metal screws into the Thermo-Bord.

The Corrugated battens on the outside of the building are secured by bolting through the Thermo-Bord. At all girts the fasteners pass through the sheets and battens and secure to the steel members. Thermo-Bord should be furnished in exact length so that the horizontal butt joints fall in the center of the girts. Thermo-Bord is available in lengths up to and including 12'-0" and in a standard width of 4'-0".

As a matter of economy Thermo-Bord can be applied in standard size sheets; such as 4'-0" by 8'-0" sheets, and the horizontal joints also covered with Flat Asbestos-Cement Battens. This is a very satisfactory construction if the appearance of horizontal battens on the inside is not objectionable. This method eliminates the cutting of the Thermo-Bord to the exact lengths to match the girt spacings and also eliminates wasting that quantity of Thermo-Bord from the standard size sheets.

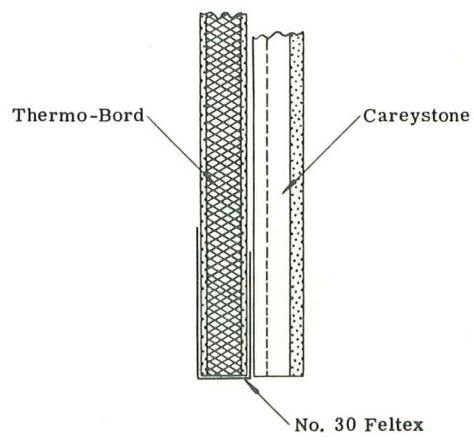
At curbs, sash heads, door heads, and over openings or where there are exposed ends of insulation board and where the materials rest on structural members which could subject the materials to the elements or moisture, an end enclosure of No. 30 Feltex should be used. See Detail "X" at right.

Carey thermo-wall construction lends itself for easy removal and 100% salvage for re-erection at a new location. This feature makes the product most adaptable on buildings that must be of insulated type, that are planned with temporary end construction. For future extensions it can be removed and relocated several times.

No other one type of insulated wall constructions contain all the outstanding features of Carey thermo-wall construction. Check the following list of qualities.

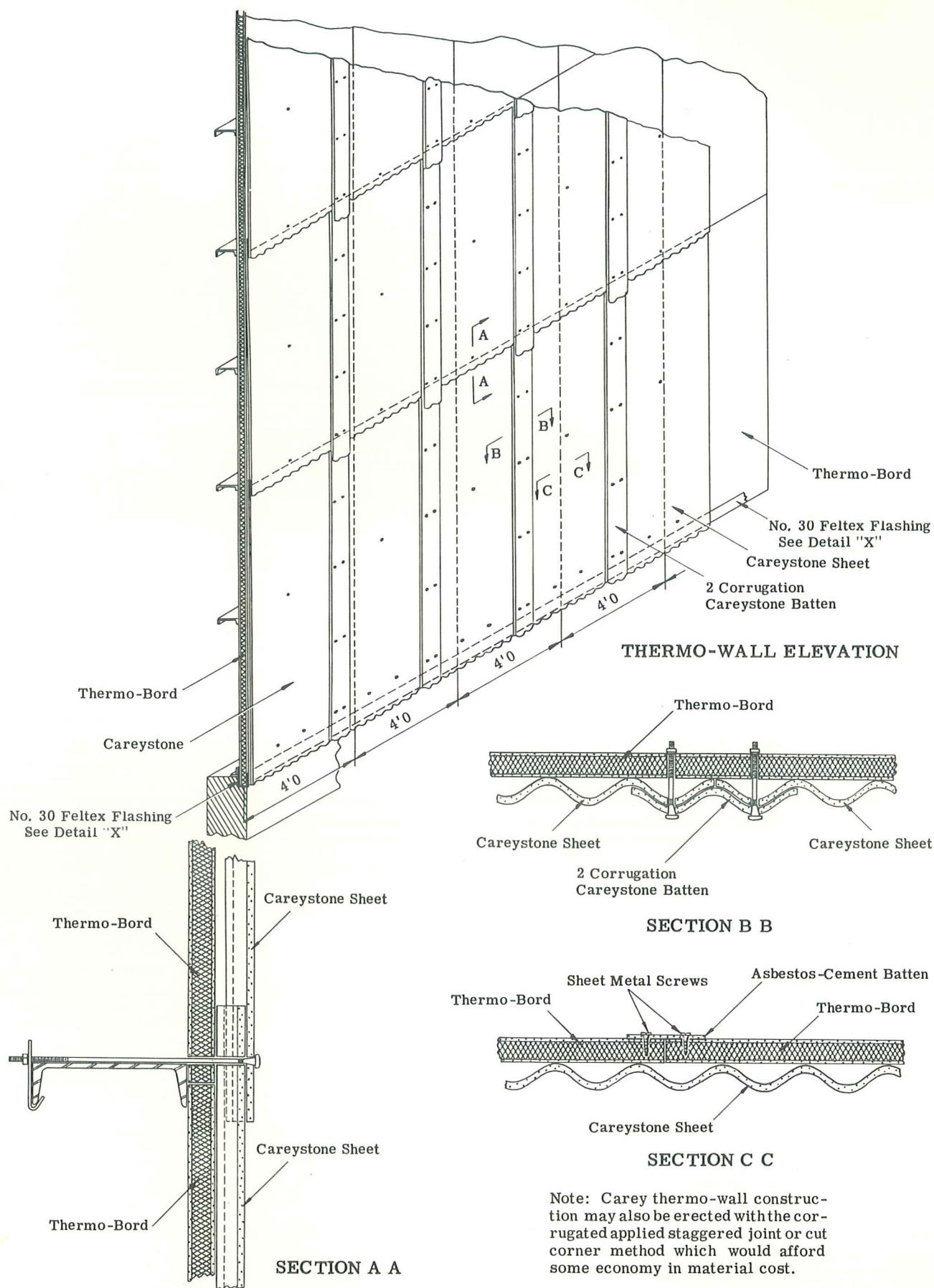
1. Economical construction.
2. Permanent materials.
3. Fire resistant Asbestos-Cement outside and inside surfaces.
4. Fast erection.
5. Structurally strong.
6. No special equipment required for erection.
7. Thin wall construction with 7/8" insulation, maximum overall thickness 3-1/2".
8. Insulated construction with 7/8" insulation offers better insulation than a 14" common brick wall.
9. Light in weight - reduces foundation requirements - weighs about 1/20 of weight of a 14" common brick wall.
10. Reduces building settling and no cracking as in masonry construction.
11. Gray-white permanent outside and inside appearance.
12. The natural light inside wall color offers nearly 60% light reflectivity.
13. No painting or maintenance necessary - However, it can be painted for decorative reasons, if desired.
14. 100% salvable for reuse.
15. Modernistic - Eye pleasing inside and outside construction.
16. Long girt spans (with 1-1/8" Thermo-Bord 8'-0" & with 1-9/16" and 2" Thermo-Bord 10'-0").

Write to nearest Carey District Office for literature giving complete information and suggested construction details on Carey thermo-wall construction.



DETAIL X

DETAILS OF THERMO-WALL CONSTRUCTION



CAREYSTONE CORRUGATED WITH CORRUGATED WIRE GLASS

It is often desirous to have natural light in a building either through the roof and/or side wall areas employing the use of corrugated wire glass.

Since Corrugated Wire Glass is only manufactured in a small type corrugation, which does not match in pitch or thickness with any other type of corrugated material, it is necessary to use a combination of flashings and sealing strips to use with other materials.

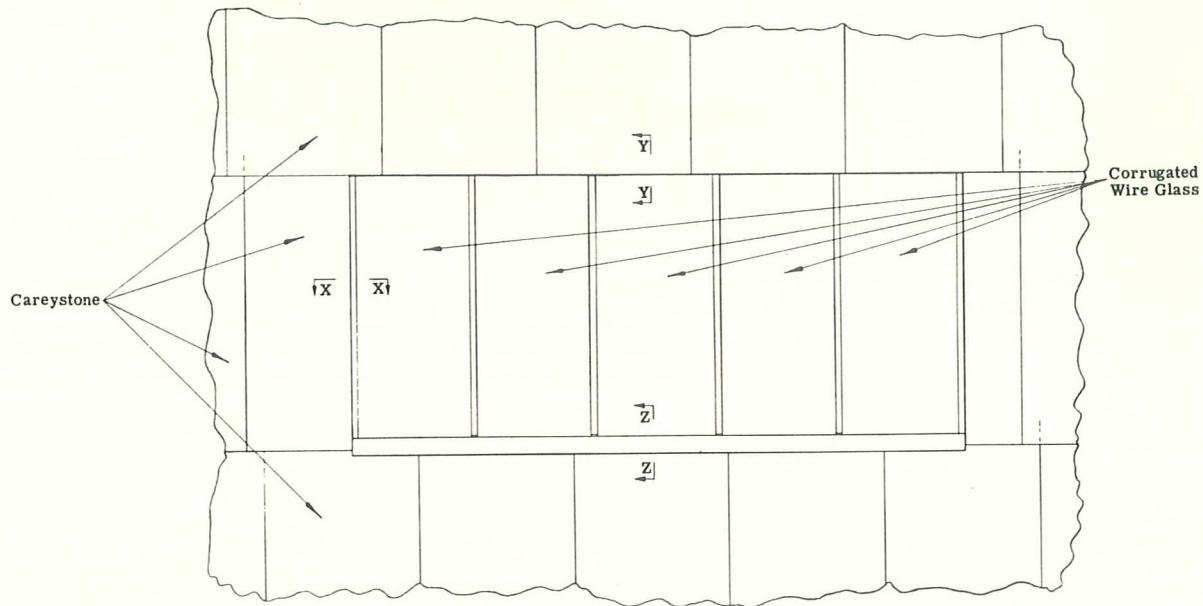
Ordinarily there are no changes required in the structural steel for the use of corrugated wire glass with Careystone Corrugated.

Special flashings and strips required for corrugated wire glass, when used with Careystone, are furnished by the manufacturer of corrugated wire glass. Metal flashings are available from them in a wide range of various metals.

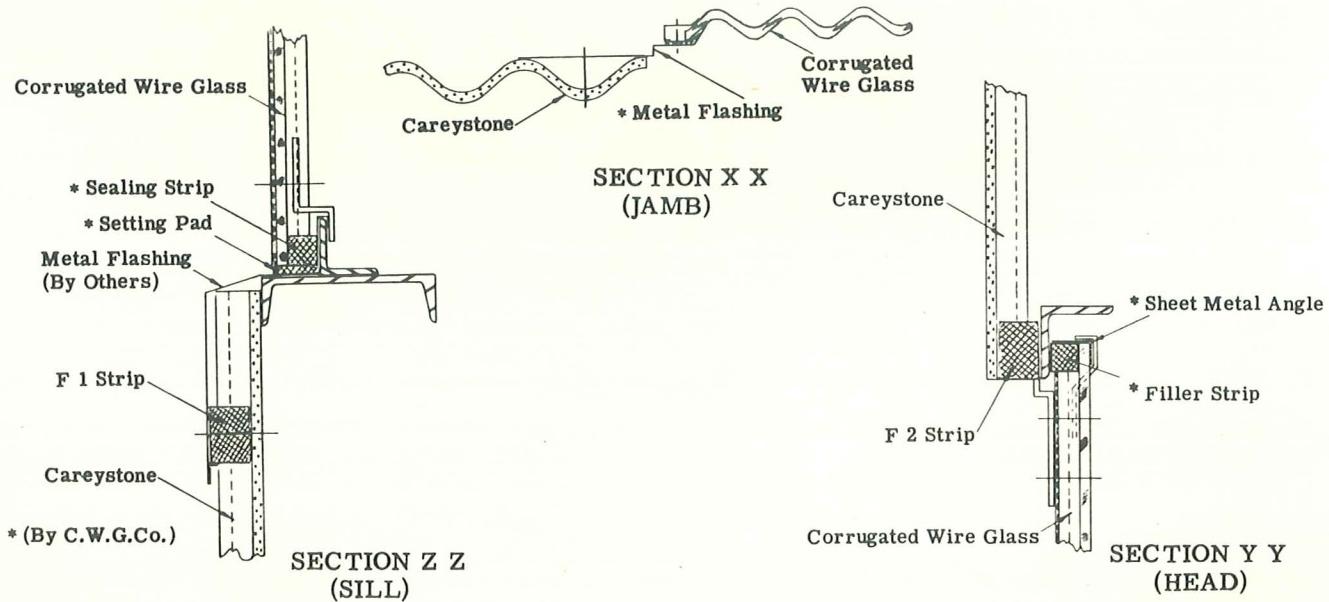
Corrugated Wire Glass has been used in conjunction with Careystone Corrugated for a good number of years with entire satisfaction.

Typical construction details for using corrugated wire glass in Careystone Corrugated areas are shown below and on page 53.

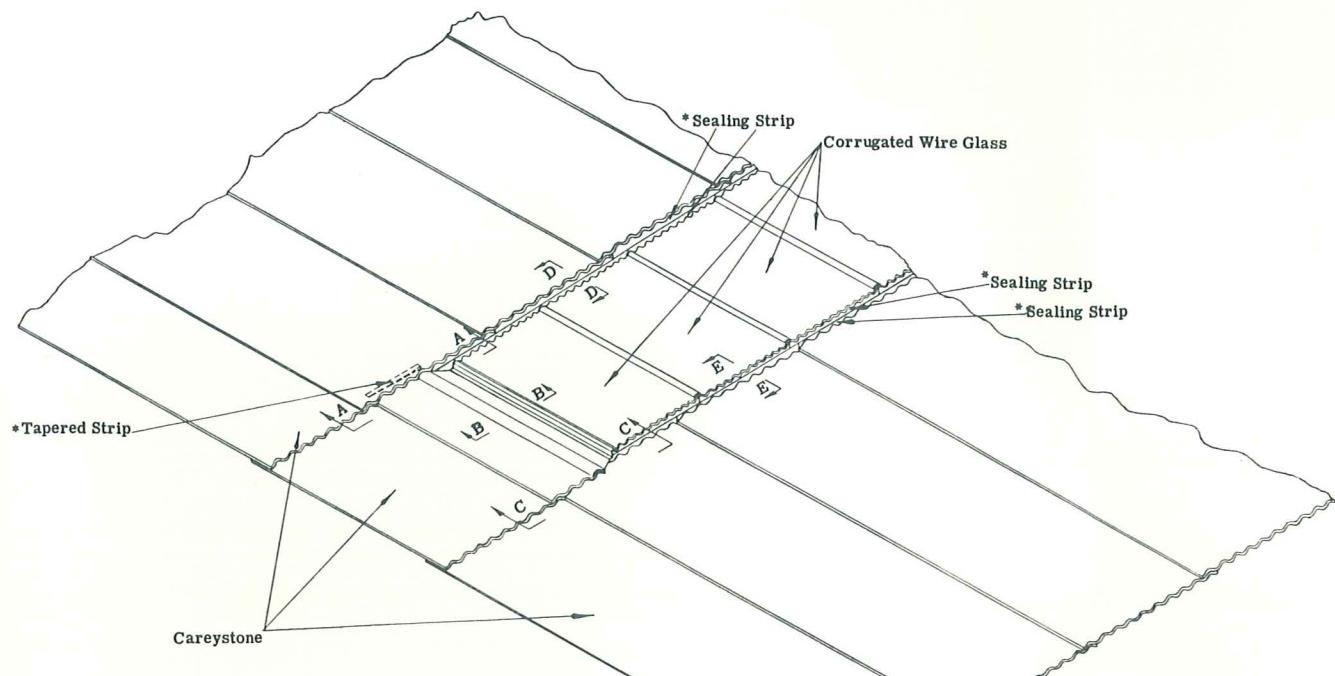
DETAILS OF CAREYSTONE CORRUGATED WITH CORRUGATED WIRE GLASS



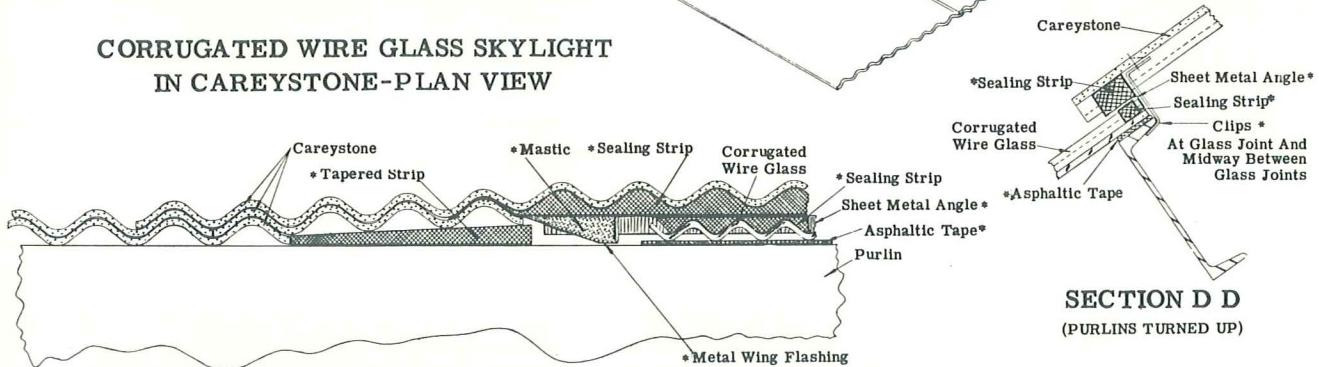
CORRUGATED WIRE GLASS WINDOW IN CAREYSTONE WALL ELEVATION



DETAILS OF CAREYSTONE CORRUGATED WITH CORRUGATED WIRE GLASS (Continued)

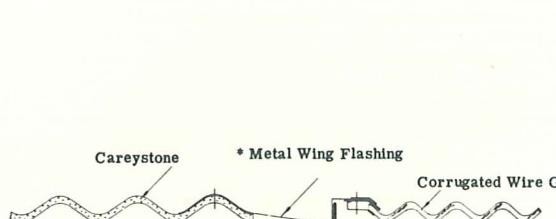


CORRUGATED WIRE GLASS SKYLIGHT
IN CAREYSTONE-PLAN VIEW

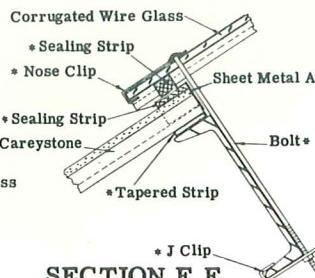


SECTION D D
(PURLINS TURNED UP)

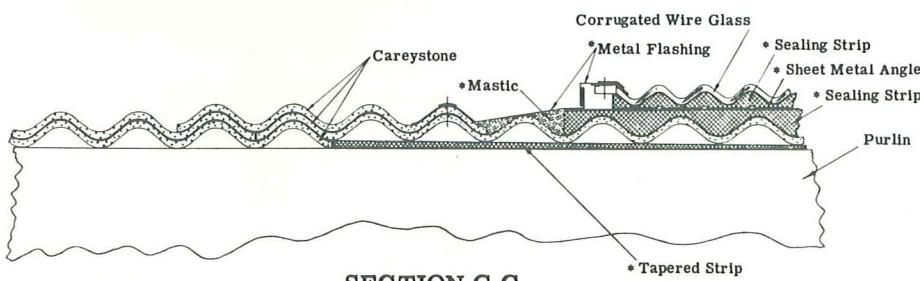
SECTION A A



SECTION B B

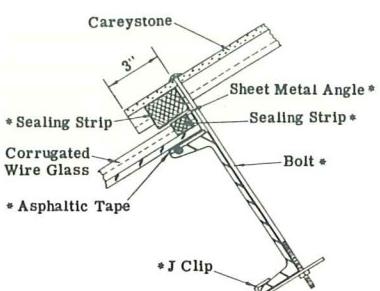


SECTION E E
(PURLINS TURNED DOWN)

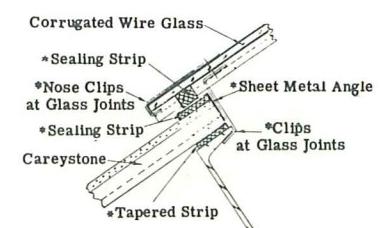


SECTION C C

* (By C.W.G. Co.)



SECTION D D
(PURLINS TURNED DOWN)



SECTION E E
(PURLINS TURNED UP)

CAREYSTONE CORRUGATED WITH PLASTIC 4.2 CORRUGATED SHEETS

There are several manufacturers of transparent and/or translucent corrugated 4.2 sheets that can be used with Careystone Corrugated where natural light is desired in roof or wall areas.

No change in the structural steel is required on a job that has been designed for the use of Careystone Corrugated.

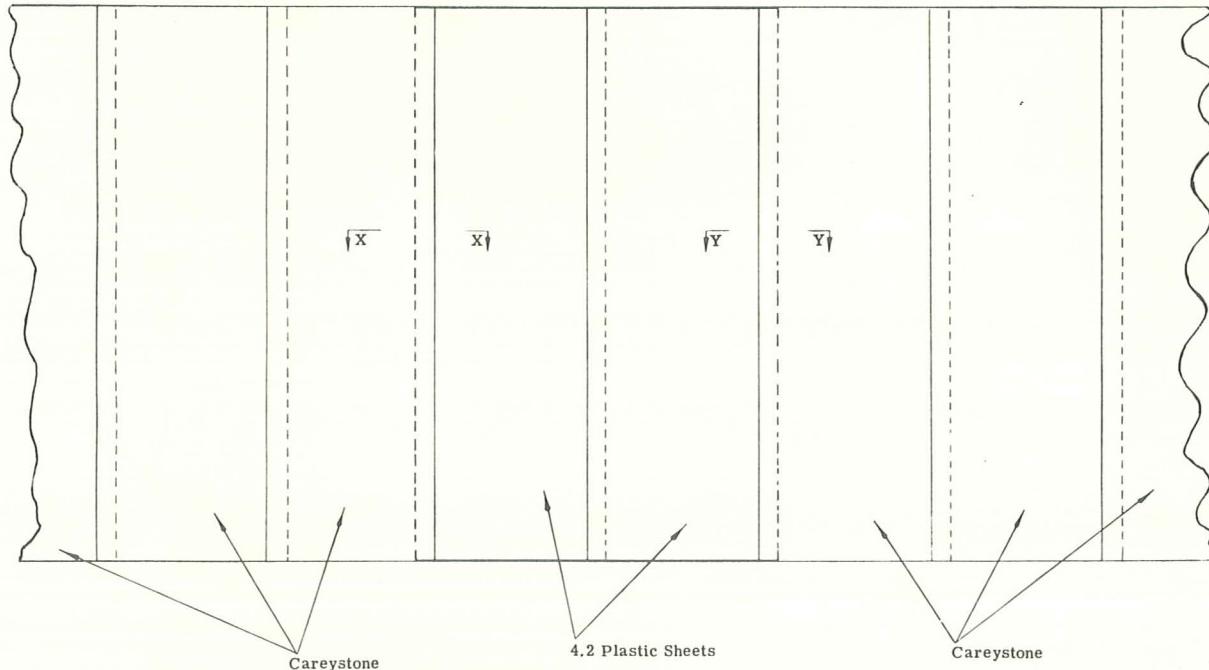
The plastic 4.2 sheets are substituted in any desired areas for the Careystone sheets although since plastic sheets are not as thick as Careystone, the voids caused by this difference of thickness must be filled with a mastic sealing compound.

This compound is furnished by the manufacturer of the plastic sheet.

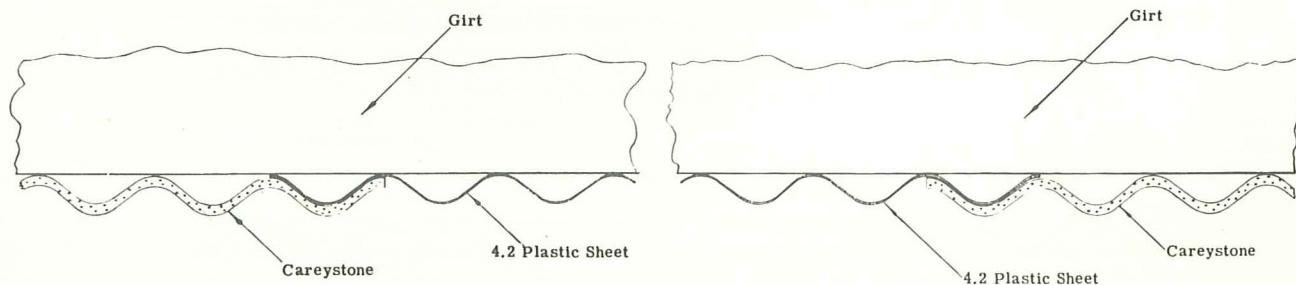
On side wall construction when there is only one course of sheets, the 4.2 plastic sheet can be very easily and neatly used by placing the plastic sheets next to the girts and having the Careystone Corrugated overlap one corrugation on both sides of the plastic sheet or sheets.

Typical construction details for using corrugated plastic sheets in Careystone Corrugated areas are shown below and on page 55.

DETAILS OF CAREYSTONE CORRUGATED WITH PLASTIC 4.2 CORRUGATED SHEETS



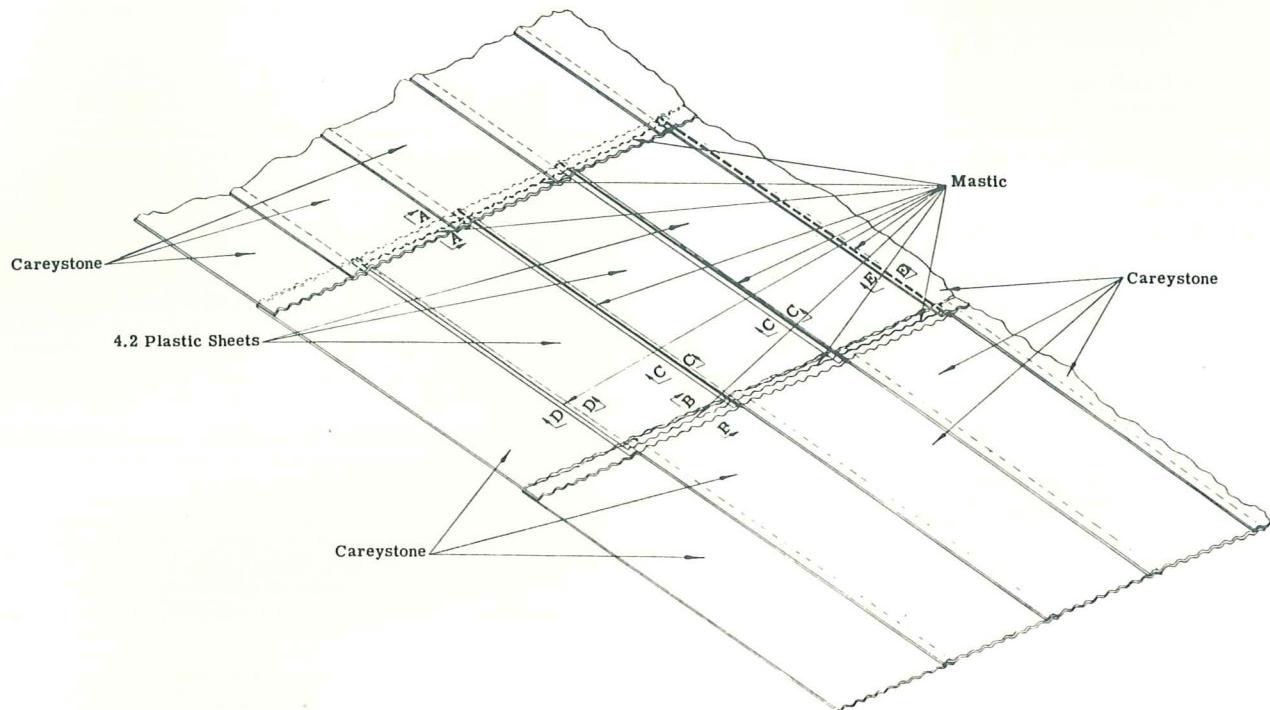
**4.2 PLASTIC SHEETS IN CAREYSTONE WALL ELEVATION
(ONE COURSE CONSTRUCTION)**



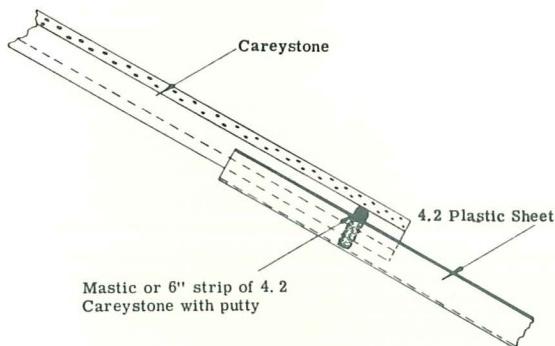
SECTION X X

SECTION Y Y

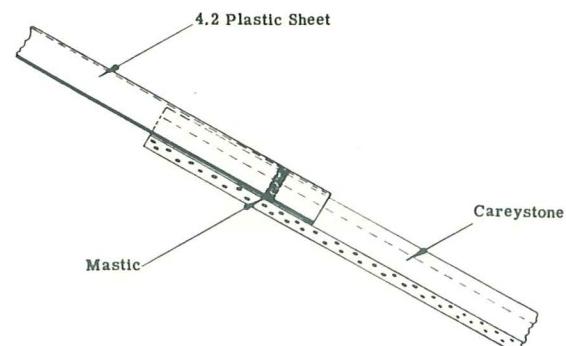
**DETAILS OF CAREYSTONE CORRUGATED WITH
PLASTIC 4.2 CORRUGATED SHEETS (Continued)**



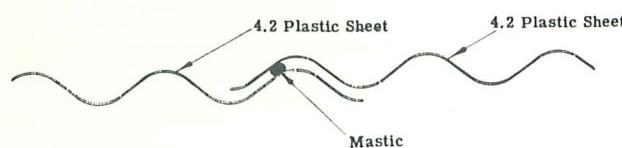
4.2 PLASTIC SHEET SKYLIGHT WITH CAREYSTONE - PLAN VIEW



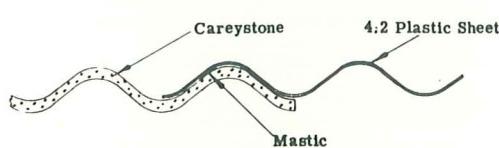
SECTION A A



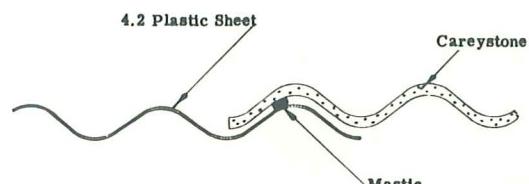
SECTION B B



SECTION C C



SECTION D D



SECTION E E

CAREYSTONE CORRUGATED ROOF DECK

Careystone Corrugated Asbestos-Cement sheets are recommended for roof decks over which built-up roofs are applied. Careystone decks are used for both flat and pitch type constructions.

The use of Careystone decks offer a fire resistant underside of an attractive gray-white color that will require no painting or maintenance. The corrugations give an acoustical advantage over a flat under surface deck construction.

Careystone is applied with the smooth surface down - toward the inside of the building.

The sheets are applied with butt side joints and butt end joints. The butt end joints always being located in the middle of a supporting member. If the under side of the deck is to be subjected to a humidity or steam condition from operations in the building, it is then recommended that the sheets be applied by the staggered joint method, having one corrugation side lap and a minimum 4" end lap, with a bead of Carey Black Putty in both the side and end laps of the sheets. End laps of sheets must occur over supporting members.

Supporting members (purlins) are to be located on maximum 3'-6" centers and the corrugations of the sheets must run at right angles to these members. All butt ends of sheets must fall in the middle of purlins or supporting members that have at least 4" wide flat areas, so that all ends of sheets have at least 2" bearing surfaces. Intermediate purlins (not at Careystone butt end joints) need not be 4" wide.

On butt jobs this 4" bearing surface at the butt end joints can be obtained by using purlins having 4" flanges or by using standard light weight channels that have an angle welded to them, back to back, with one leg flush with the top of the channel. See detail "Y" below.

On constructions where the purlin spans are greater than 3'-6" it is still possible to use a Careystone Deck by the addition of angle sub-purlins. These angle sub-purlins are placed across the purlins on 3'-6" centers, having one leg on the same plane as the roof and the other leg pointing down. The leg turned down must be notched or coped out at the purlins so that the bottom side of the leg of the angle that is on the same plane as the roof, rests on the top of the purlins.

At the butt end joints of the sheets these sub-purlins must have at least a 4" leg on which the butt joints rest. Intermediate sub-purlins do not have to be that wide.

Sub-purlins should be bolted (with countersunk flat head bolts to give a flat top surface) to the purlins or be spot welded to the purlins.

When sub-purlins are used, the Careystone sheets must be applied having the corrugations running at right angles to the sub-purlins. Careystone sheets should span as many purlins (or sub-purlins) as possible to eliminate extra end joints, thus reducing the number of 4" wide steel bearing surfaces required. This will expedite the installation of the deck and also reduce erection and steel costs.

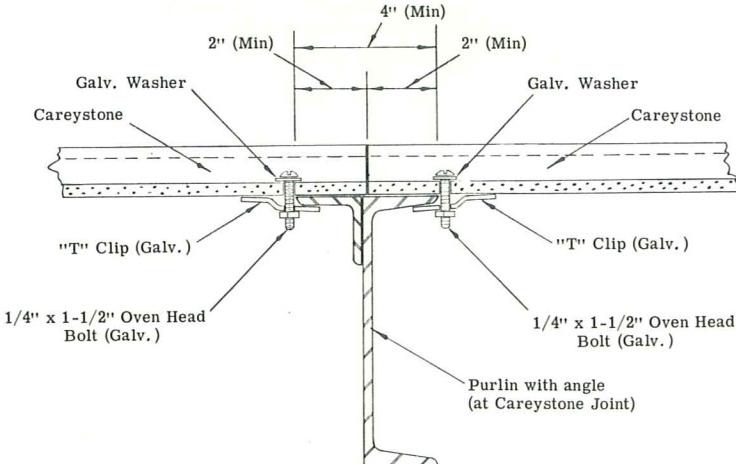
Careystone sheets are secured to the steel with standard fasteners, located in the vales of the corrugations. With the bolt and clip method, a type "T" clip (furnished by Carey) is used in place of the standard "Z" clip. This clip does not have as great an offset as the "Z" clip since it does not have to fit up into the corrugations.

Fasteners should be located in the vales between the two outside corrugations on both edges of the sheets and in the vale of the center corrugations of all sheets at each purlin or sub-purlin.

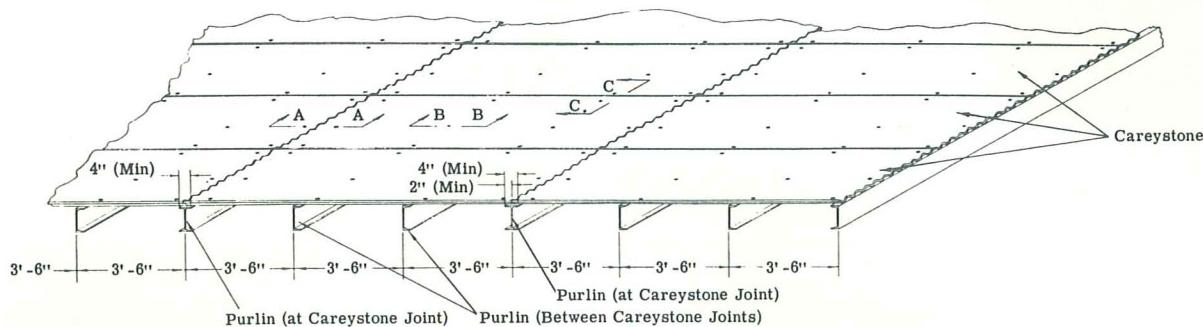
Insulation must be used over Careystone Decks. When vegetable fiber type insulation board is employed, the minimum thickness of insulation board must be 1-1/2". Insulation board should be secured to the Careystone by sheet metal screws driven into the Careystone after the proper size pilot hole has been drilled through the insulation and Careystone. Heads of the screws should be screwed down until they are flush or below the top surface of the insulation board. Poured type insulation such as Gypsum, Vermiculite, Zonolite, Perlite, etc., can very successfully be used as insulation over Careystone. Minimum thickness of poured type insulation to be 1-1/2" above high part of corrugation.

Over the insulation must be installed a built-up roof, applying the type recommended for the slope of roof and type of insulation used. Carey Built-up Roofs should be applied in strict accordance with instructions in Carey Built-up Roofing Specification Book.

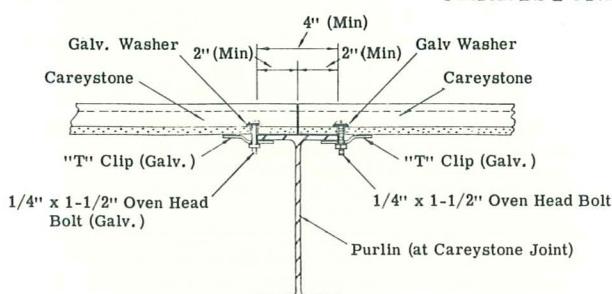
DETAILS OF CAREYSTONE CORRUGATED ROOF DECK



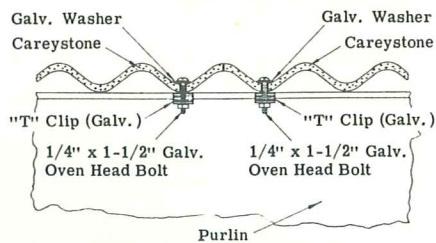
DETAILS OF CAREYSTONE CORRUGATED ROOF DECK (CONTINUED)



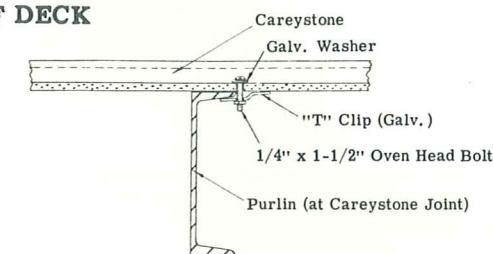
CAREYSTONE ROOF DECK



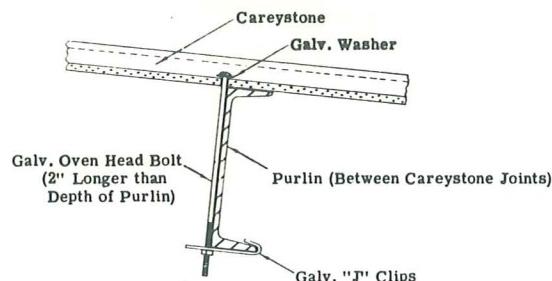
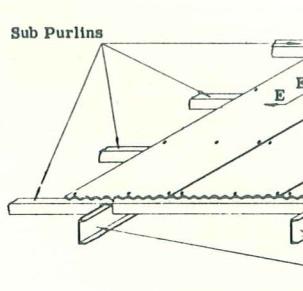
SECTION A A



SECTION C C

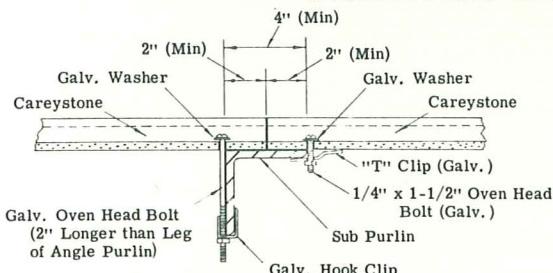


SECTION B B

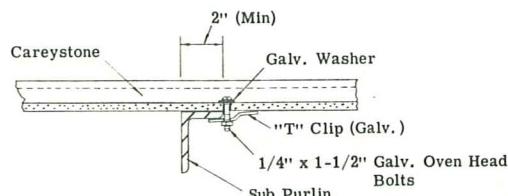
SLOPING DECK - "J" CLIP FASTENER
(When Purlin Legs are Pointed Down the Slope)

CAREYSTONE ROOF DECK (USING SUB PURLLINS)

NOTE: If 4.2 Careystone is applied with one corrugation side lap and 6" end laps and fastened by the standard fastening methods, the purlins can then be located on 4' centers.



SECTION D D



SECTION E E

ERCTION PRECAUTIONS TO APPLICATORS

Do not permit any cracked or broken sheets to be applied on the building.

Do not stand directly under sheets being hoisted.

Do not pile extra sheets on roof; apply each sheet as it is brought up.

Do not overload sheets.

Planks and/or chicken ladders should be used in the application of roofing. When necessary to walk on roofing, always walk on the side laps or directly over the purlins. Purlins can be located from the top side by the continuous rows of fasteners. Do not jump, walk or stand on center of sheets.

Always step between fasteners as they could be slippery and cause a fall. If stepped on, fasteners may become distorted enough to cause a leak.

Step carefully on roofing and do not congregate in one area of the roof.

Avoid any traffic on sheets in wet weather as material may be slippery when wet.

Don't step on unfastened sheets.

Don't use any acids, salt or other chemicals on roof to remove ice or snow as they may have a deteriorating effect on the fasteners and cause leaks.

Always have an abundance of chicken ladders and/or planks on the job which all the men can walk on and work from during application. These should always be used so that they span purlins, when used on top of corrugated sheets bolted in place.

UNLOADING SHEETS

Sheet should be handled carefully when being unloaded from freight cars or trucks - care must be taken that the edges are not damaged in handling.

Trucks should be spotted as close to storage location as possible.

If convenient, storage locations of sheets should be located near the area where the materials will be required. This will often save double handling and reduce danger of damage to material in handling and also reduce erection costs.

Sheets should be laid down carefully on one another on the stack. Sheets must not be thrown or dropped on the ground or stack.

Any sheets received damaged in transit should be counted and respective length recorded and so marked on the delivery ticket of the carrier - the delivering carrier must acknowledge this damage and sign. This must be done when materials are unloaded as replacement is carrier's responsibility. All materials are sold F.O.B. our plant and are in perfect condition when accepted by the carriers. The Philip Carey Mfg. Company is not responsible for damage in transit.

Any sheets cracked or broken by contractor or owner in unloading should be put aside and not mixed in storage piles, as they must not be used on the building.

STORING SHEETS

Careystone sheets should be stacked on a level place using 2" x 4" lumber not less than 42" long placed on approximate 18" centers at right angles to the corrugations as a base. The stacks should not be more than 4'-0" or 120 sheets high. For most economical application, each stack should only contain one length of sheets. If that is not practical, always place longest sheets at bottom of the stacks. The materials may be stored outdoors, although indoor storing or covering of stacks stored outdoors will keep the materials cleaner and prevent materials from freezing together in wet and extreme cold weather.

CUTTING SHEETS

Carey will furnish sheets to required lengths up to 12'-0". Standard stock lengths are in multiples of 6". Sheets can be furnished with diagonal cuts but customer must give complete dimensions for each sheet to be diagonally cut.

Sheets around openings and diagonal sheets at rakes should be cut as required in field to get perfect fit. Variations in

steel do not make it practical to attempt to calculate the required diagonal sheets since the most accurately figured sheets will not fit perfectly because of field variations in the steel and/or wood erection.

Field cutting is easily and economically done by the use of an 8" portable power saw, using a carbide-tipped steel blade or a silicon carbide resinoid (carborundum type) blade.

Carbide-Tipped Steel Blades cut Careystone faster than the carborundum type blade. These Carbide-Tipped Blades are available throughout the entire United States from all:

Black and Decker Sales and Service Branches
Black and Decker Distributors

The proper grit and hardness of the carborundum type blade is important and we are therefore listing below the proper types to use. While there are only two manufacturers' products listed, there are blades of other manufacturers that are satisfactory and the proper type can be obtained by specifying blades to be comparable to the number of the blades listed.

CARBORUNDUM Co. - Niagara Falls, N.Y.
RED-I-CUT Wheel No. RC8.

Norton Co. - Worcester, Mass.
Wheel No. 37C24 - TBNA.

The carborundum type blades are known as cut-off wheels and when ordering, it is necessary to advise that the blade is to be 1/8" thick and by the required diameter for the portable saw on which it will be used.

The size and shape of the required arbor hole must be stated. When using a carborundum type blade, care must be taken not to twist the blade as this will cause the blade to bind and break. If the cut is going out of line, it is not possible to divert the cut back in line without the possibility of breaking the blade. The saw should be lifted out of the cut and a new cut be made on the proper line. Only straight line cuts can be made with a power saw.

For small jobs a five point cross cut hand saw can very successfully be used. A five point cross cut keyhole saw can be used for circular or other than straight line cuts.

Circular or odd shaped holes entirely contained in a sheet can be made by drilling a series of small holes around the perimeter of the opening required and the piece broken out or sawed out with a keyhole saw.

DRILLING HOLES FOR FASTENERS

All holes for fastening must be drilled in the field. Holes must be drilled, not punched. Holes are always located in the crest (top part of corrugation on outside of building) - unless specified otherwise for special constructions. Sheets should be held in place on the building and the holes drilled as required. For best results, holes should be drilled from the inside of building for bolt and clip method of application. This assures that bolts will rest on the steel members for best performance. Sheets should not be drilled on the ground as variations in steel will prevent the fasteners from being located in the exact positions where they should be located.

For Lead Head and Oven Head bolt and clip method, a light duty 1/4" electric drill with a 5/16" capacity chuck is ordinarily used. On small jobs or where electric power is not available, a brace and twist drill can be used. Drill size for lead head bolt and also oven head bolt must be 9/32" diameter.

For Nelweld Method a larger electric drill is required because the drill size used as 9/16" diameter.

For "Topseal" (#14 Self-Tapping Screw) Fastener hole size to be drilled in 4.2 Careystone to be 5/16" diameter. Hole size in steel to be smaller per Fabricated Products specifications depending on thickness of metal members. For "Holegrip" side lap fastener drill 1/2" diameter hole in Careystone.

For "Top-Side" (H & B) Fasteners of types C, E, J and SHO, drill 3/4" diameter hole in 4.2 Careystone.

Regular steel drilling bits should be used but it will be found that by grinding them with a greater bevel, making the drill more pointed, that the drilling through Careystone will be done faster.

TIGHTENING OF FASTENERS

All types of fasteners used to secure Careystone must not be drawn down too tightly. With the bolt and clip method the nuts should only be drawn up to a moderate tightness. Under no circumstances should the nuts be drawn up tight enough to show any signs of bending the clips.

When the lead head bolt is placed in the hole in the sheet, it should be given a slight blow with a hammer to make the tapered shank seat with the Careystone. This will make it watertight and eliminate the need of pulling up the nut too tightly.

With the Nelweld Hex-nut, a socket wrench having only a 4" long handle should be used. This should be tightened up by hand with only moderate pressure. Too much pressure could cause the sheet to form hair line cracks around the hole.

HOLES IN SHEETS FOR PIPES & OPENINGS

Holes in the center of sheets or holes that are entirely contained in the sheet can be made by drilling a series of small holes around the perimeter of the required hole and then breaking or sawing out with a key hole saw.

Circular holes required at laps of sheet can be cut out of each piece from the edge of the sheet with a key hole saw.

A coarse wood rasp can be used if a smooth edge fit is required.

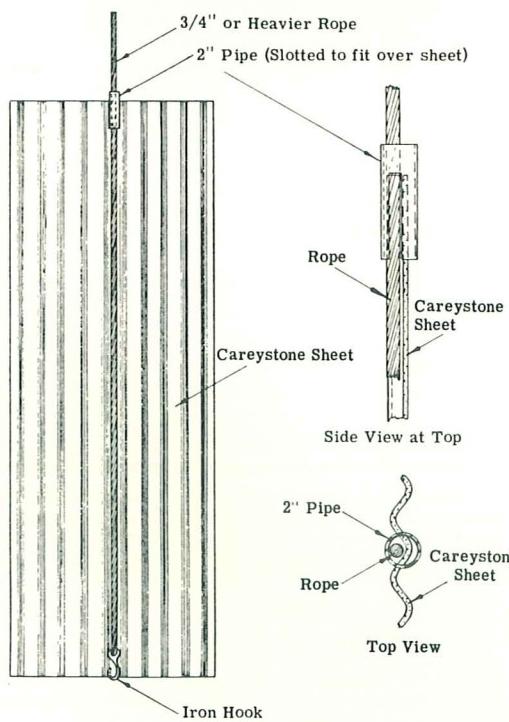
HOISTING SHEETS

Careystone sheets to be elevated to roof can be taken up by hand hoisting or with a power hoist. An "A" frame can be built to ride on the purlins and thus can be moved down the roof as the job progresses.

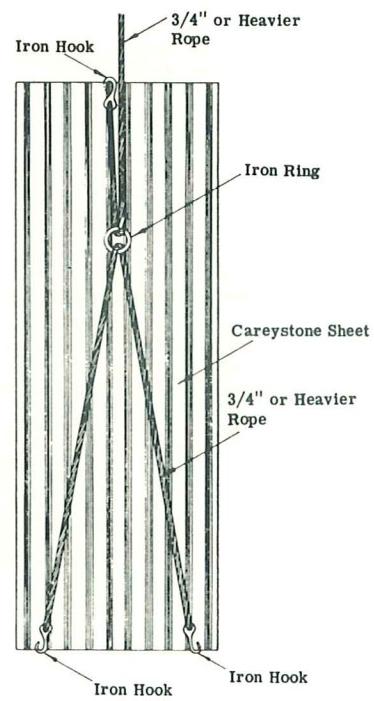
On some large roof jobs it has been found that a skid or track built from the ground to the eave is very economical. This is built from 2" x 4" or 2" x 6" lumber. This track should be about 43" to 45" wide, having slide rails on each side for the sheets to ride on and edge rails to keep the sheet on the track.

There are several types of slings used to hoist sheets. The type one and type two shown below are most commonly used. They enable the sheets to be pulled up on the track and also enable the sheets to be held in place on siding for drilling prior to removing the sling.

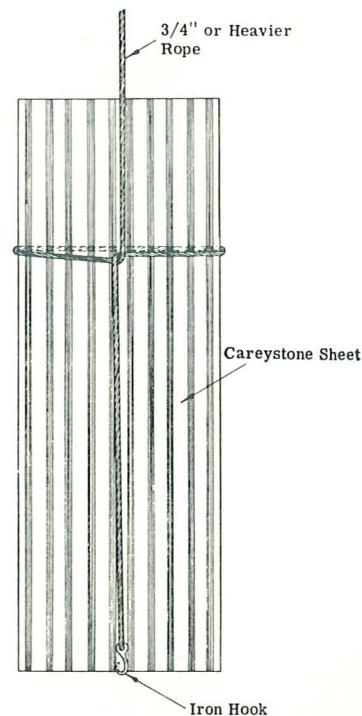
All three types of slings shown below enable the sheets to be held in place on siding for drilling the bottom holes prior to unhooking the slings. Type one or two should be used if materials are pulled up a track. Types one and two are most economical to use in all cases as sheets can be put on and taken off much faster than type three which requires looping the line around the sheet both on the ground and elevated.



ROPE SLING METHOD NO. 1



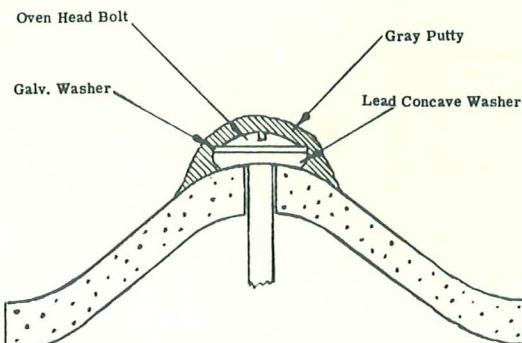
ROPE SLING METHOD NO. 2



ROPE SLING - METHOD NO. 3

CAREY GRAY ROOF PUTTY

When oven head bolts are used, all exposed bolt heads and washers must be covered with Carey Gray Roof Putty. This is a special material designed specifically for use with Careystone Corrugated. The oils do not bleed out into the Asbestos-Cement Board and leave only a chalk to weather tight the bolt heads. Instead, this putty forms a hard protective coating on the outside, yet stays soft inside to give many years of perfect performance. About ten lb. of putty is required for 300 bolt heads.

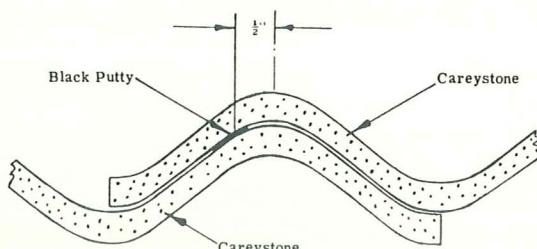


TYPE 2
OVEN HEAD BOLT

CAREY BLACK PUTTY

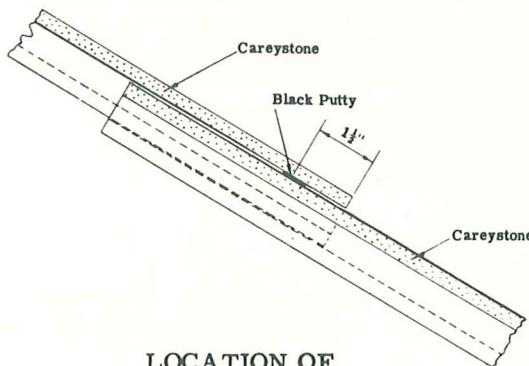
Black Putty must be used in all side and end laps of roofing regardless of the pitch of the roof. It is furnished in rope type or in gun grade. Gun Grade putty must be applied with a gun having a $3/8$ " diameter nozzle. It should be applied in an even unbroken $3/8$ " bead located in the side and end lap area that is covered by the next sheet to be applied. Black Putty is always applied to the sheet that is already in place.

The bead of Black Putty in the side lap is located $1/2$ " from the crest of the corrugation on the corrugation that will be covered by the next sheet. It is placed $1/2$ " from the center of the edge corrugation toward the main part of the sheet. This locates it between the ninth and tenth corrugation just $1/2$ " from the top of the tenth corrugation.



LOCATION OF BLACK PUTTY IN SIDE LAP
(BLACK PUTTY REQUIRED ON ROOFING ONLY)

The bead of Black Putty in the end lap is located so that it will be $1-1/2$ " up from the bottom edge of the overlapping sheet. When starting each course, the first sheet should be laid in place (but not bolted) to determine the exact location of the bottom edge of the overlap. After that point is located on the under sheet, the unbolted sheet is moved aside and the Black Putty is applied $1-1/2$ " up from that point across the sheet. The location of the Black Putty in the end laps is thus determined for the entire course. On cut corner application where the end laps are always exactly 6", the bead of Black Putty can be located by placing it $4-1/2$ " from the top edge of the sheet in place.



LOCATION OF
BLACK PUTTY IN END LAP
(BLACK PUTTY REQUIRED ON ROOFING ONLY)

These locations of the Carey Black Putty in the side and end laps form a perfect seal that is not broken or distorted by side or end lap fasteners.

When placing a sheet of Careystone on the sheet where the Black Putty has been applied, the sheet should be dropped in place -- not slid into place. Sliding the sheet in place would distort the putty bead. Distortion of the bead or non-uniform application of Black Putty may cause the roof to allow water to work through the laps. Under no conditions should the Black Putty be applied with a knife or trowel as uniform distribution of the putty cannot be obtained in that manner. Approximately ten lb. of gun type Black Putty is required for 150 lineal feet of $3/8$ " bead.

Gray Putty should not be substituted for Black Putty for side and end lap use as its qualities differ entirely from the Black Putty and it will not give as satisfactory service for that purpose.

Care must be exercised when applying Black Putty so that none is dropped or smeared on the exposed surfaces of the sheets to spoil the attractive gray-white appearance of the finished Careystone roof.

ASBESTOS-CEMENT GROUT

Asbestos-Cement Grout is used to fill the voids of the corrugations under the wings of adjustable ridge roll, under flashing, at rakes or eaves on masonry walls etc., where sealing strips cannot be used.

This material is a Portland cement and asbestos fibre mix. It is shipped as a powder and water is added in the field. Just enough water is added to make a workable mixture.

Use one lb. of grout per lineal ft. for filling one corrugation going with the corrugation and one-half lb. of grout per lineal ft. going across the corrugations.

Grout should not be substituted where Gray Putty for caulking should be used, for grout becomes hard and has no elasticity.

SHIPPING INFORMATION

Shipments of orders involving 10,000 pounds or more are always shipped bulk, unless otherwise requested.

Shipments under 10,000 pounds must be crated. On

domestic shipments, if the freight and crating costs exceed the freight charges on 10,000 pounds, the shipment is made in bulk as a 10,000 pound shipment, unless requested otherwise.

CRATING INFORMATION

Domestic shipments under 10,000 pounds, except as stated above, are shipped in our standard domestic crates. These crates are made specially for the length of sheets to be contained therein. Domestic crates have solid 13/16" lumber around all four edges of the sheets and 13/16" lumber cross members on the top. The number of cross members varies with the length of the crate. Crates containing sheets up to 5'-0" in length have two cross members, crates containing sheets over 5'-0" to 8'-0" in length have three cross members, and crates containing sheets over 8'-0" to 12'-0" in length have four cross members. Metal straps are placed around the crates directly over the cross members. Two longitudinal metal straps are placed on each crate about 8" to 10" in from the sides.

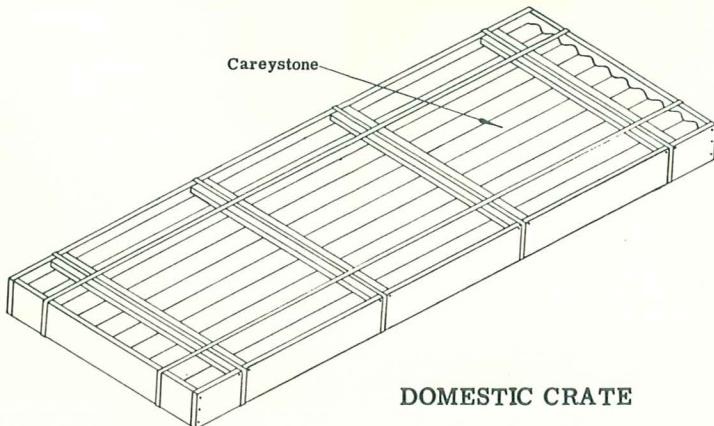
Crates are designed to stack perfectly and to assure delivery of materials in first class condition since all edges and corners of sheets are protected by wood, however, crates should not be dropped.

Standard export crates are made specially for the length of sheets to be contained therein. Standard export crates are constructed of nominal 2" lumber around all four edges of the sheets. Top and bottom cross members and diagonal brace members are 13/16" lumber. Top and bottom cross members are always located at the ends of the crate, regardless of the length of the crate. These end cross members are nailed to the side and end pieces.

Export crates containing sheets up to 5'-0" have one diagonal brace on the top and bottom of the crate. These diagonals are in opposite directions for utmost strength and bracing. Crates containing sheets over 5'-0" to 8'-0" have an intermediate cross member on top and bottom and two diagonals on both the top and bottom. Top and bottom diagonals run in opposite directions. Crates containing sheets over 8'-0" to and including 12'-0" have two cross members on top and bottom and three diagonals on both top and bottom. Top and bottom diagonals run in opposite directions.

Metal straps are placed around the crates directly over the cross members.

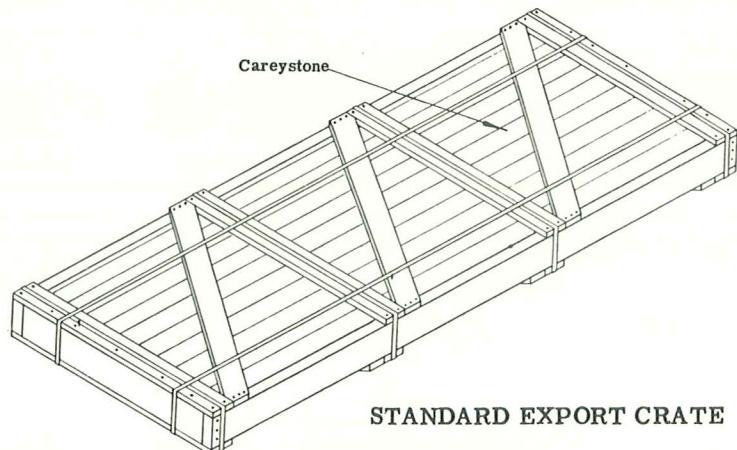
Two longitudinal metal straps are placed on each crate about 8" to 10" in from the sides.



DOMESTIC CRATE

Crates contain six sheets per crate of lengths from 4'-0" to 10'-0", and five sheets per crate of lengths over 10'-0" to and including 12'-0" sheets.

Domestic crates add approximately 12% to the bulk weight of the sheets.



STANDARD EXPORT CRATE

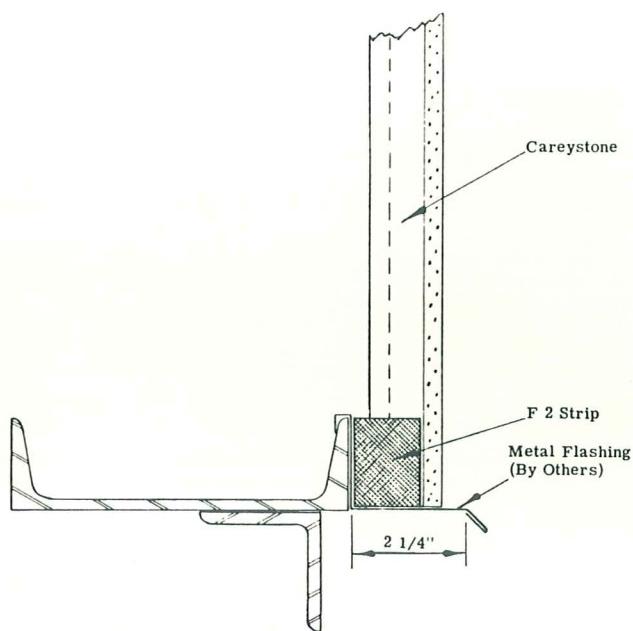
The standard export crate is designed to stack perfectly and to assure delivery of materials in first class condition for ocean shipment and severe handling conditions, however, crates should not be dropped.

Standard export crates have a gross weight of approximately 1200 pounds each.

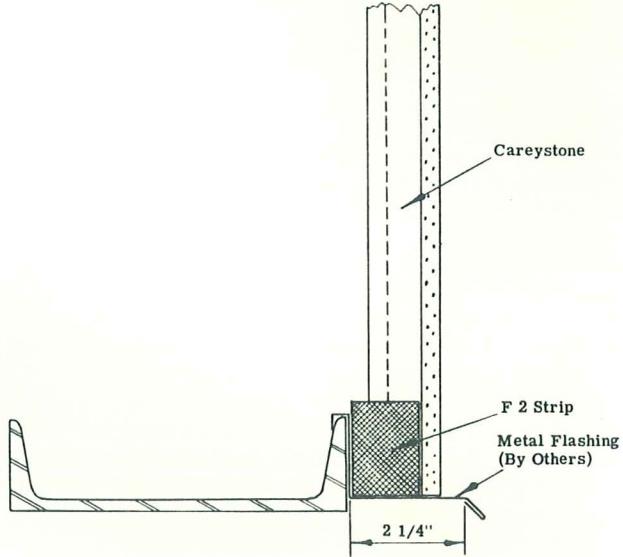
Standard export crates add approximately 18% to the bulk weight of the sheets.

See table of weights for bulk and domestic crated Careystone sheets on pages 82-83.

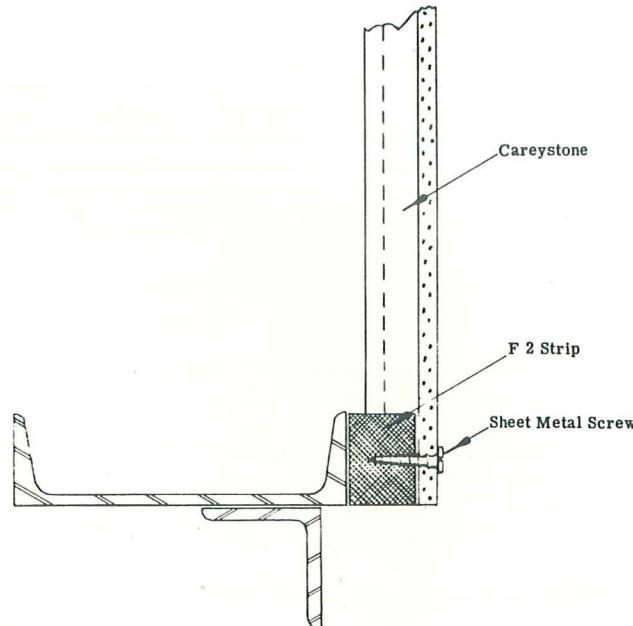
SASH AND DOOR HEAD DETAILS



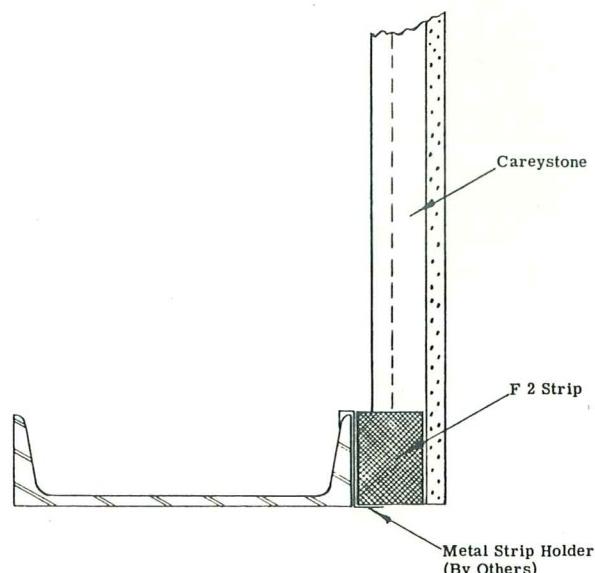
SASH HEAD FLASHING DETAIL



DOOR HEAD FLASHING DETAIL



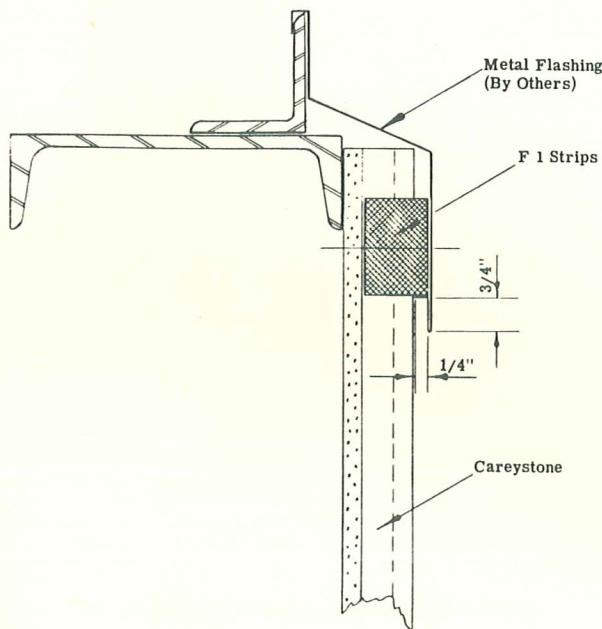
SASH HEAD DETAIL



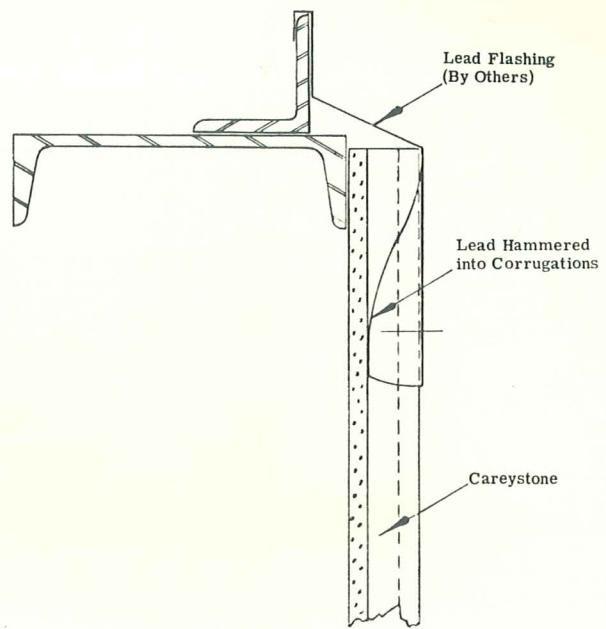
DOOR HEAD DETAIL

Copper, lead, stainless steel, monel or galvanized iron
is ordinarily used for flashing Careystone Corrugated.

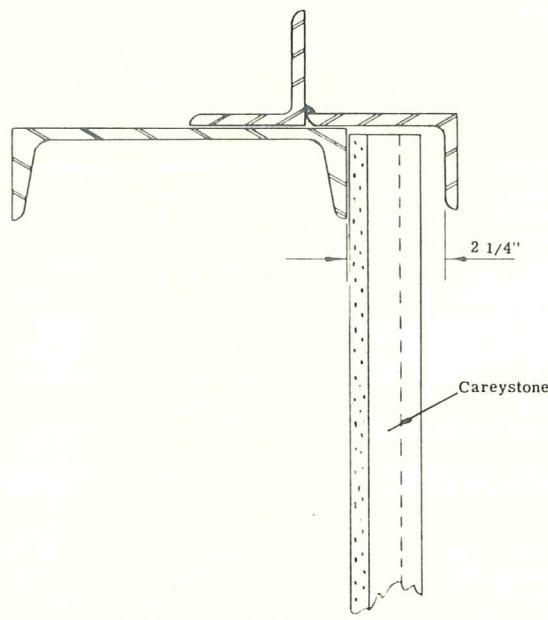
SASH SILL DETAILS



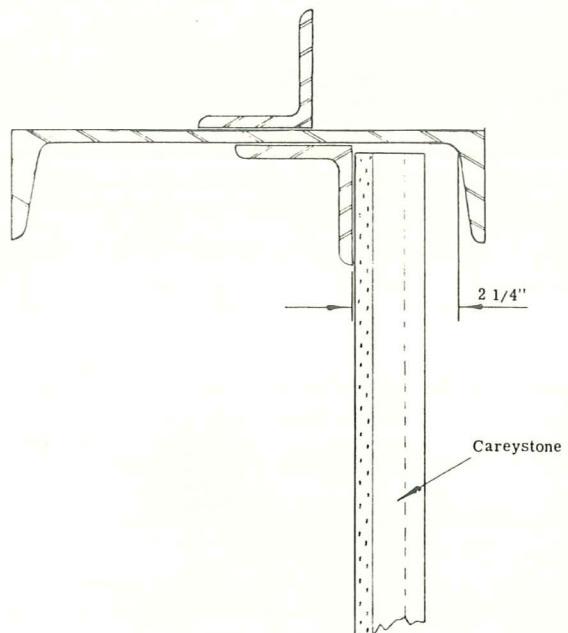
SILL FLASHING DETAIL



SILL FLASHING DETAIL



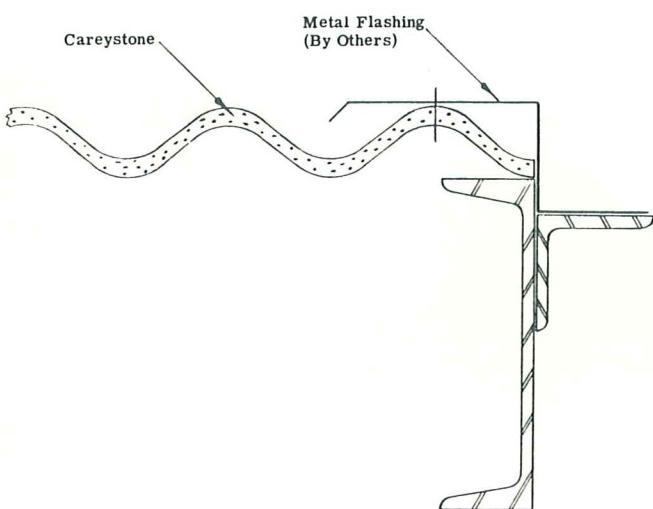
SASH SILL DETAIL



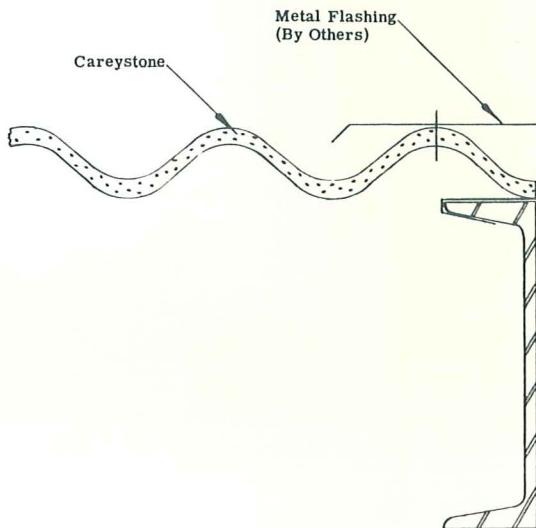
SILL DETAIL

Copper, lead, stainless steel, monel or galvanized iron
is ordinarily used for flashing Careystone Corrugated.

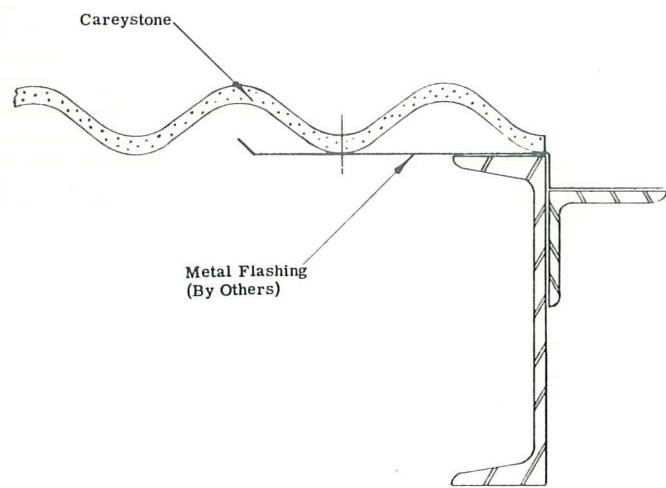
JAMB DETAILS



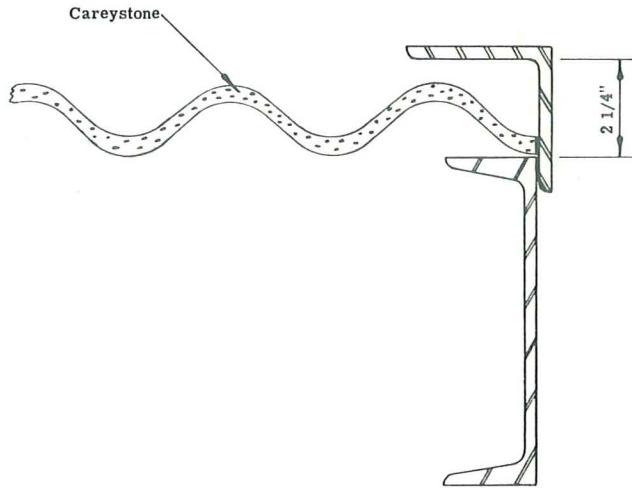
SASH JAMB FLASHING DETAIL



DOOR JAMB FLASHING DETAIL



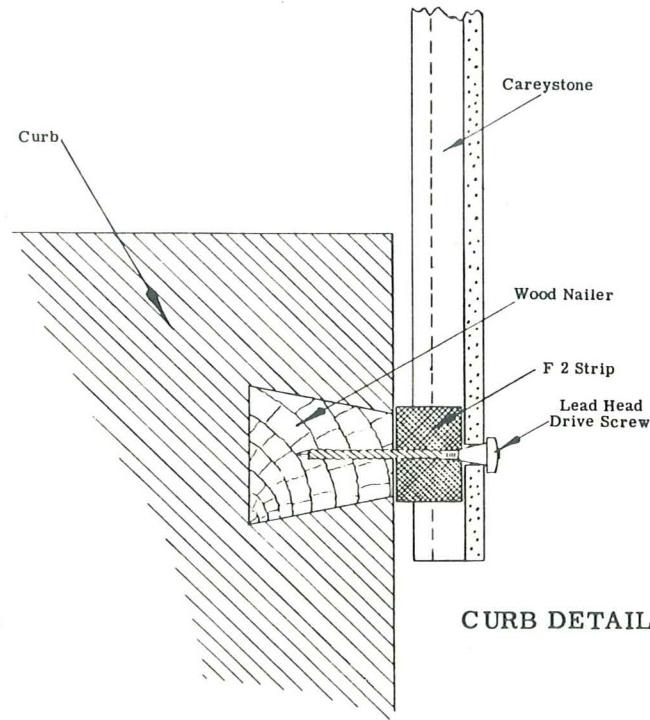
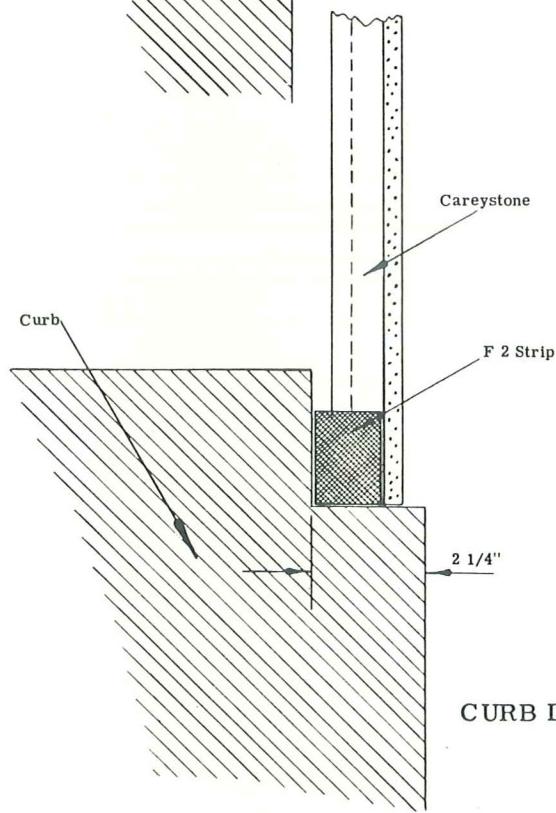
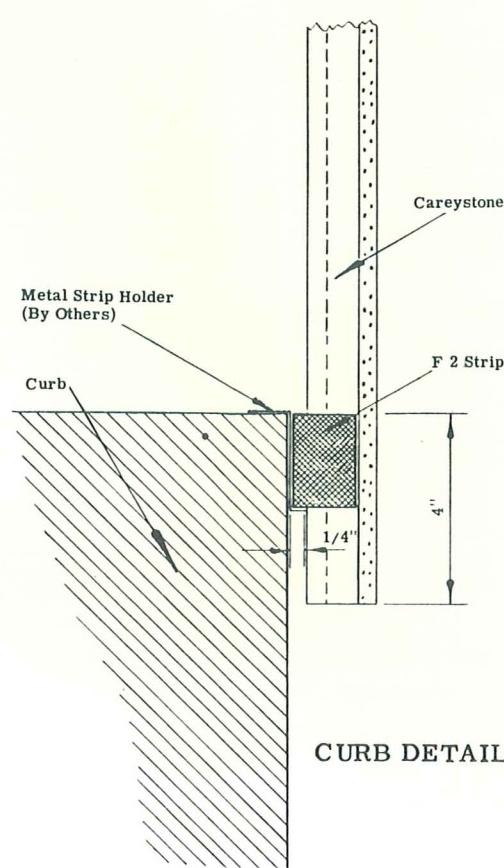
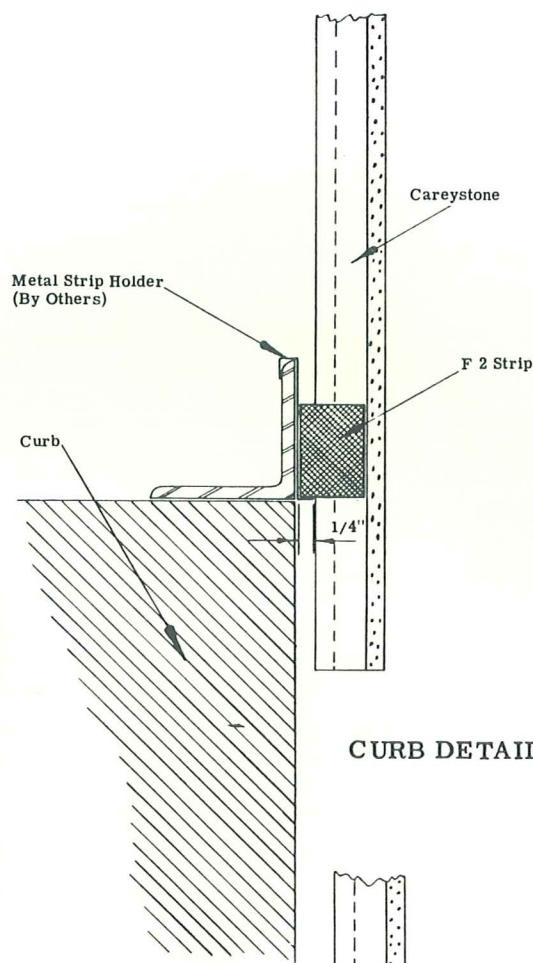
SASH JAMB FLASHING DETAIL



DOOR JAMB DETAIL

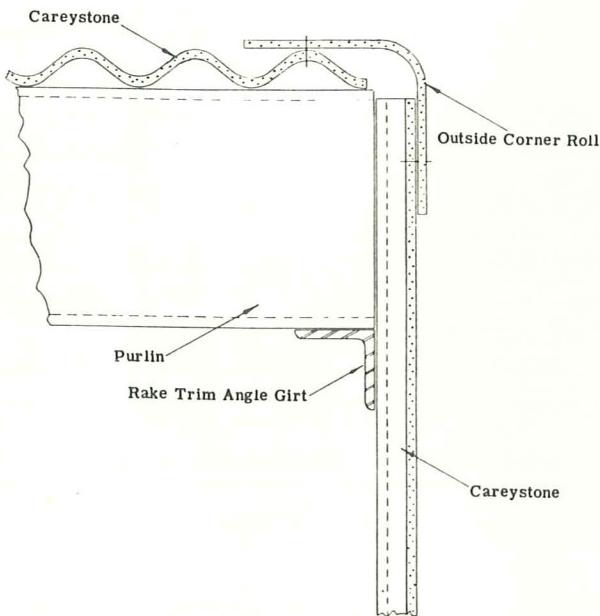
Copper, lead, stainless steel, monel or galvanized iron
is ordinarily used for flashing Careystone Corrugated.

CURB DETAILS

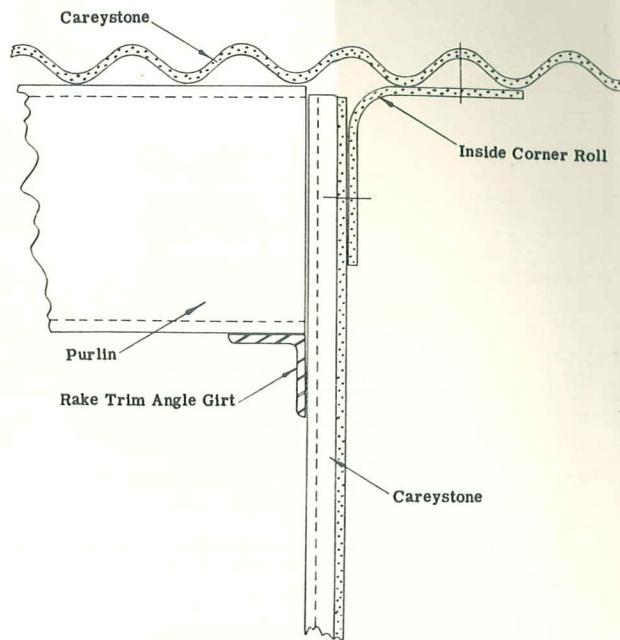


Copper, lead, stainless steel, monel or galvanized iron
is ordinarily used for flashing Careystone Corrugated.

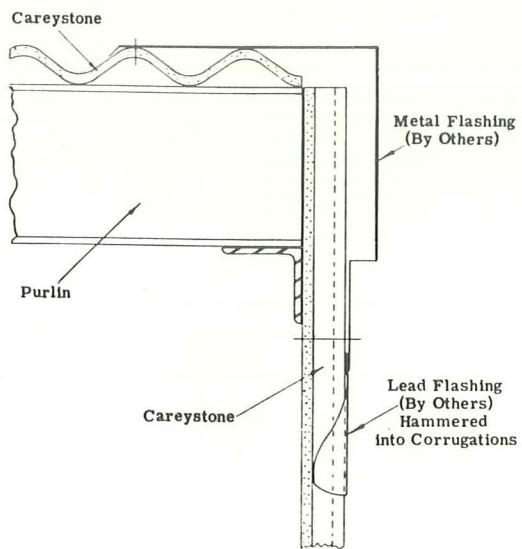
RAKE DETAILS



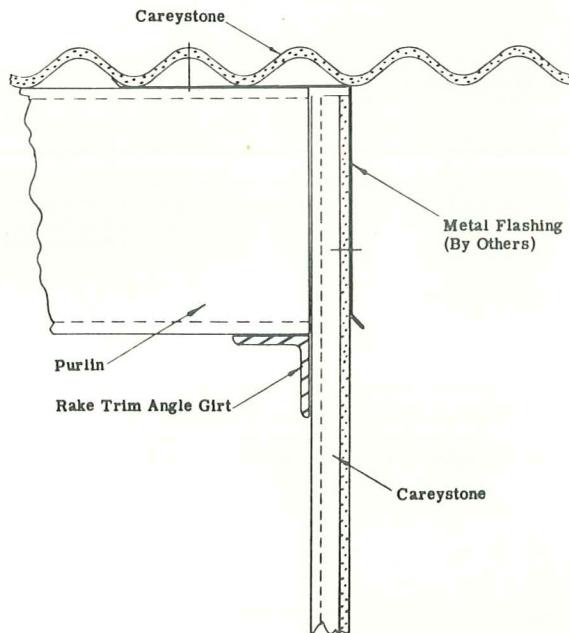
OUTSIDE CORNER ROLL RAKE
FLASHING DETAIL



INSIDE CORNER ROLL RAKE
FLASHING DETAIL



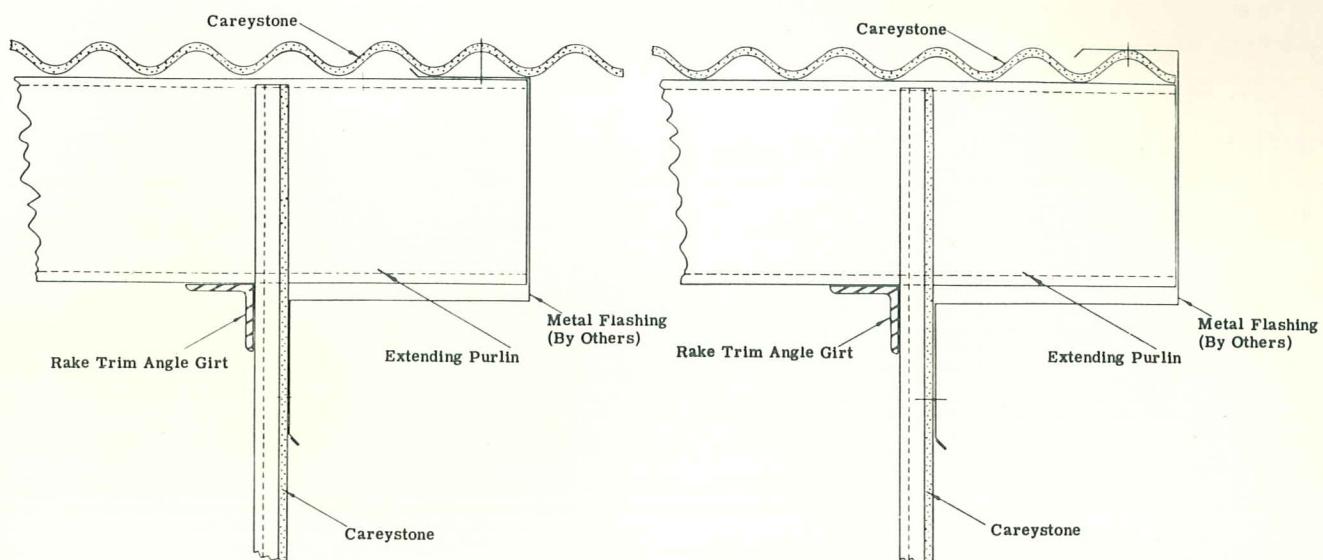
RAKE FLASHING DETAIL



RAKE FLASHING DETAIL

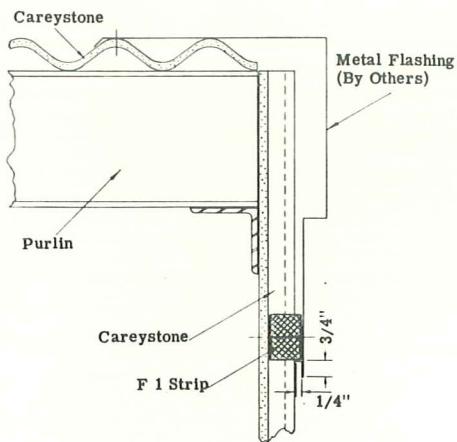
Copper, lead, stainless steel, monel or galvanized iron
is ordinarily used for flashing Careystone Corrugated.

RAKE DETAILS (Continued)



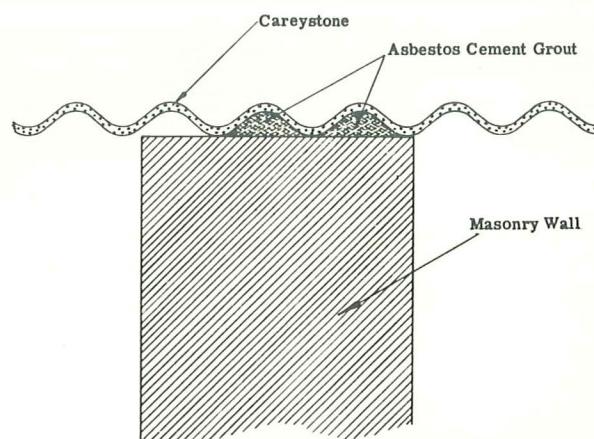
RAKE FLASHING DETAIL
(EXTENDING PURLINS)

RAKE FLASHING DETAIL
(EXTENDING PURLINS)



THIS CONSTRUCTION CAN BE USED ONLY WHEN THE SIDING HAS THE CORRUGATIONS RUNNING AT RIGHT ANGLES WITH THE ROOF AS ON CONVEYOR BRIDGES.

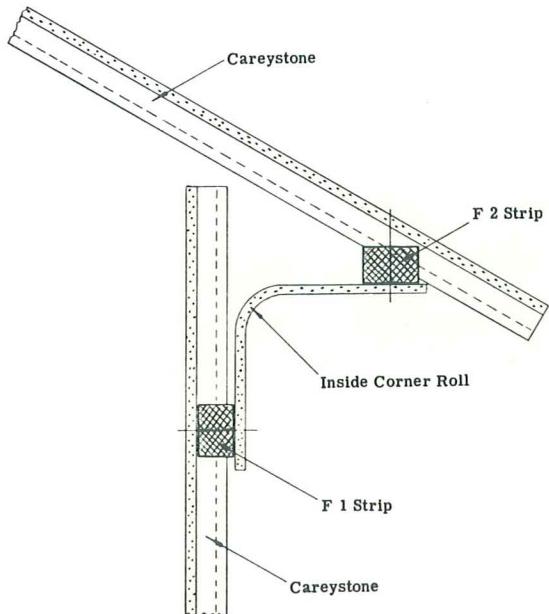
RAKE FLASHING DETAIL



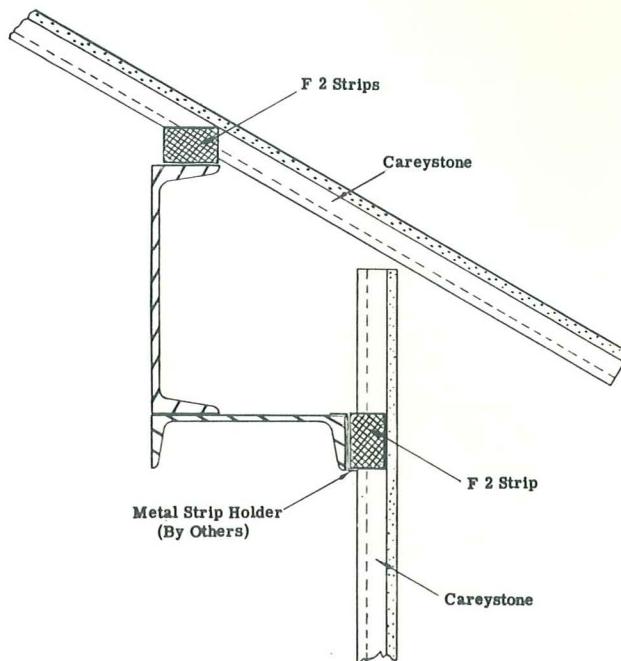
RAKE AT MASONRY WALL

Copper, lead, stainless steel, monel or galvanized iron
is ordinarily used for flashing Careystone Corrugated.

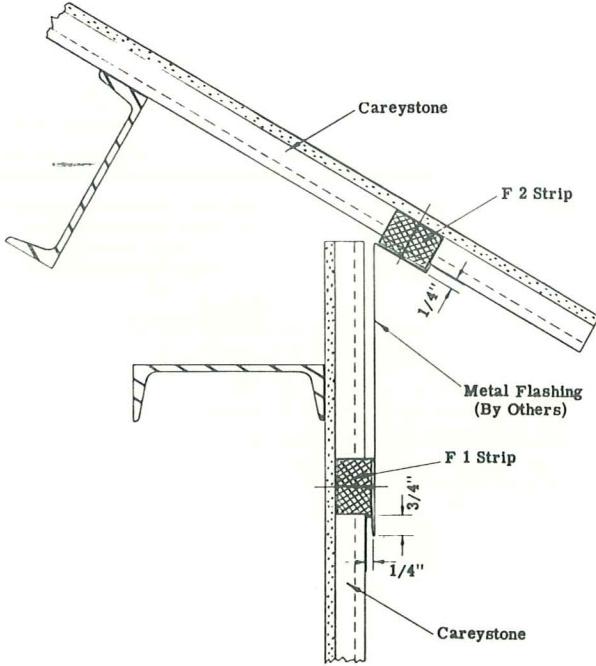
EAVE DETAILS



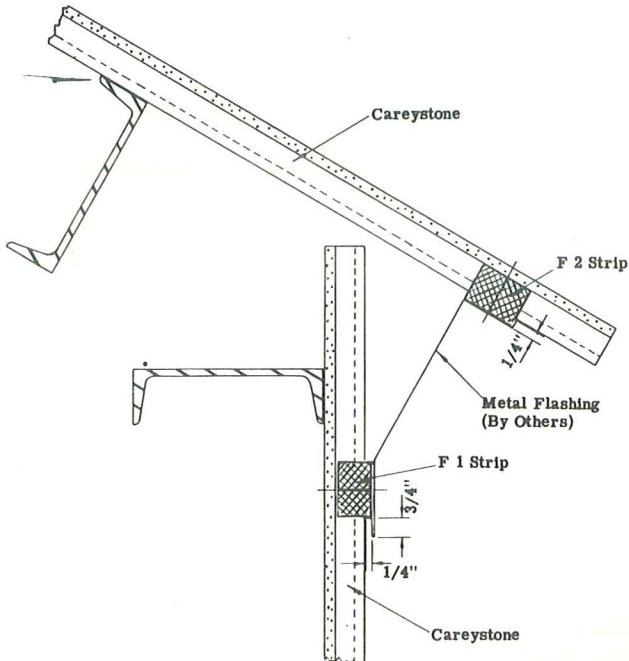
INSIDE CORNER ROLL EAVE FLASHING DETAIL



EAVE DETAIL



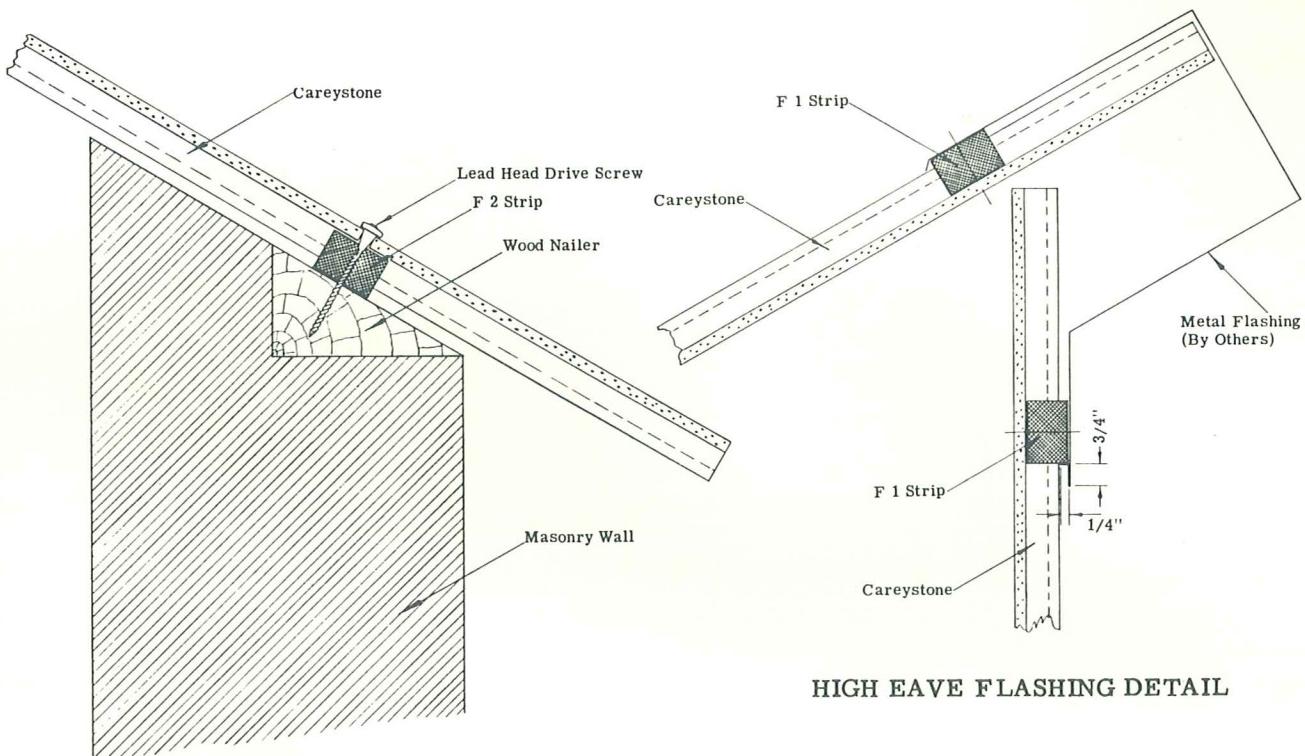
EAVE FLASHING DETAIL



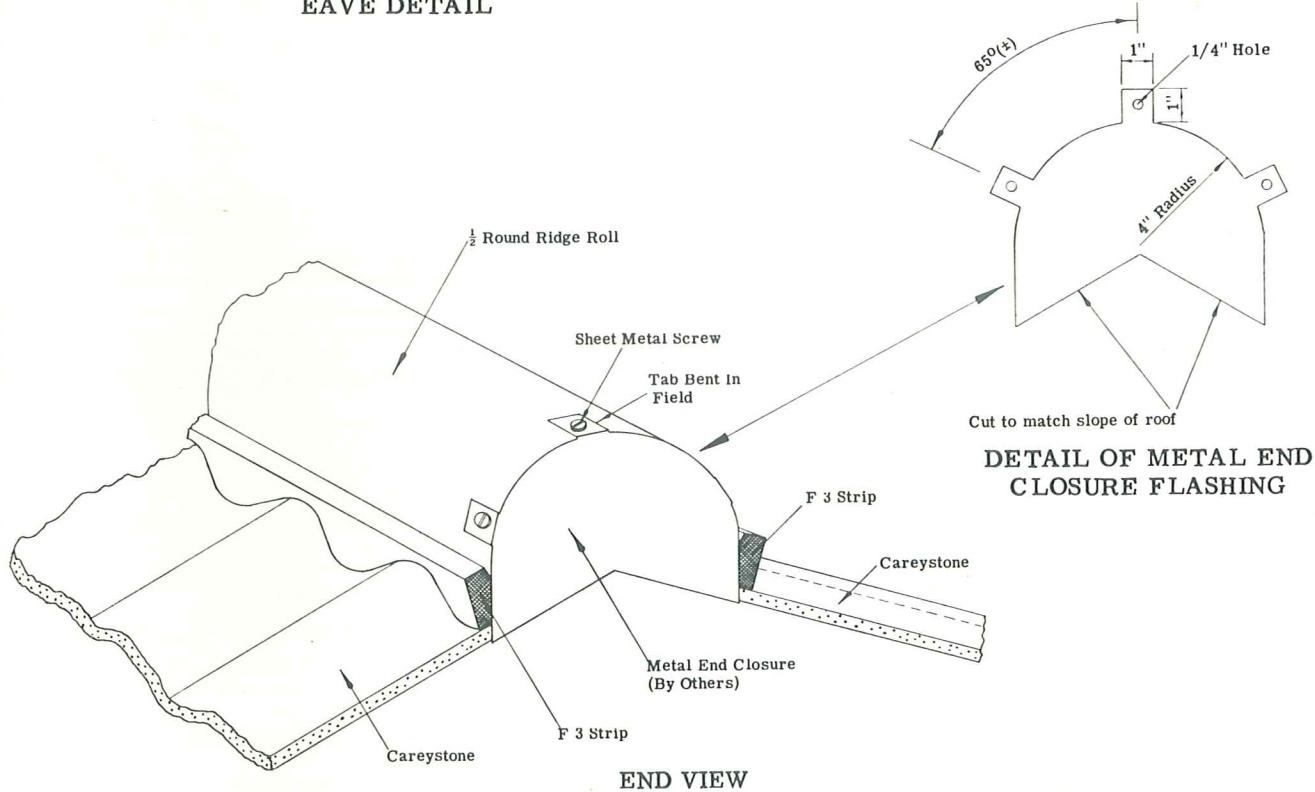
EAVE FLASHING DETAIL

Copper, lead, stainless steel, monel or galvanized iron
is ordinarily used for flashing Careystone Corrugated.

EAVE DETAILS AND RIDGE END ENCLOSURE DETAIL



EAVE DETAIL

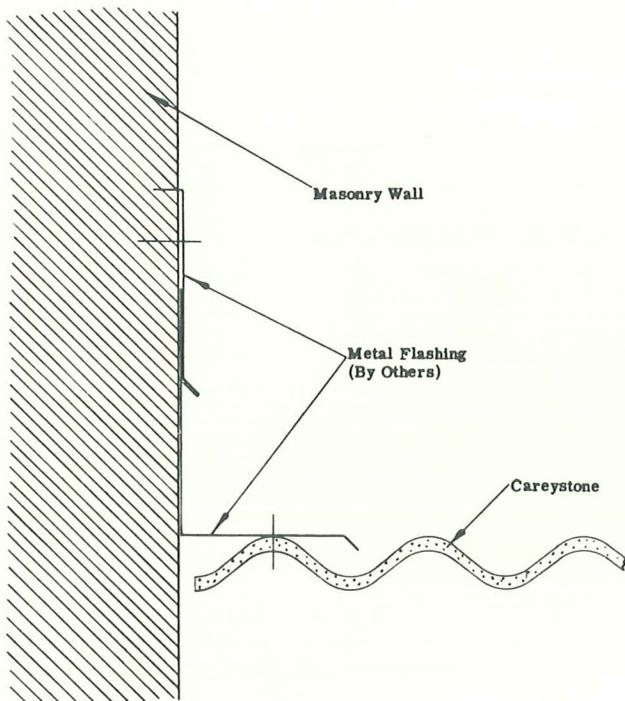


END VIEW

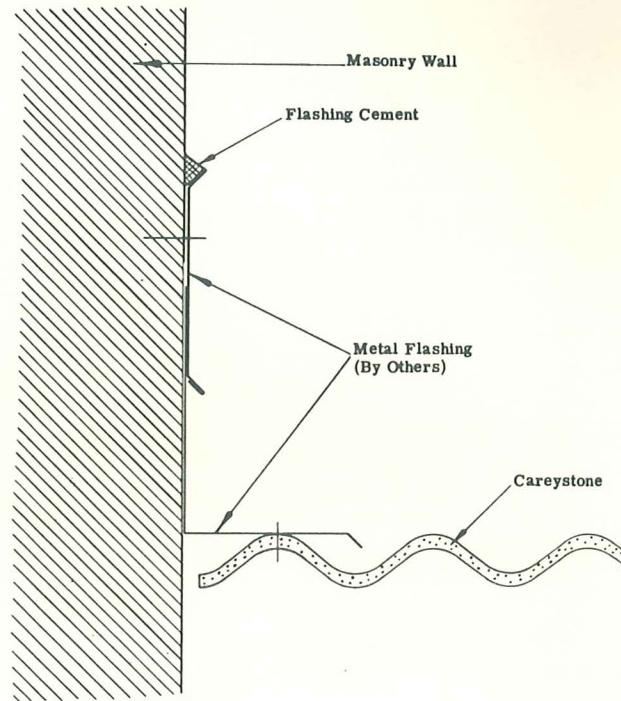
1/2 ROUND RIDGE ROLL END CLOSURE FLASHING DETAIL

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is ordinarily used for flashing Careystone Corrugated.

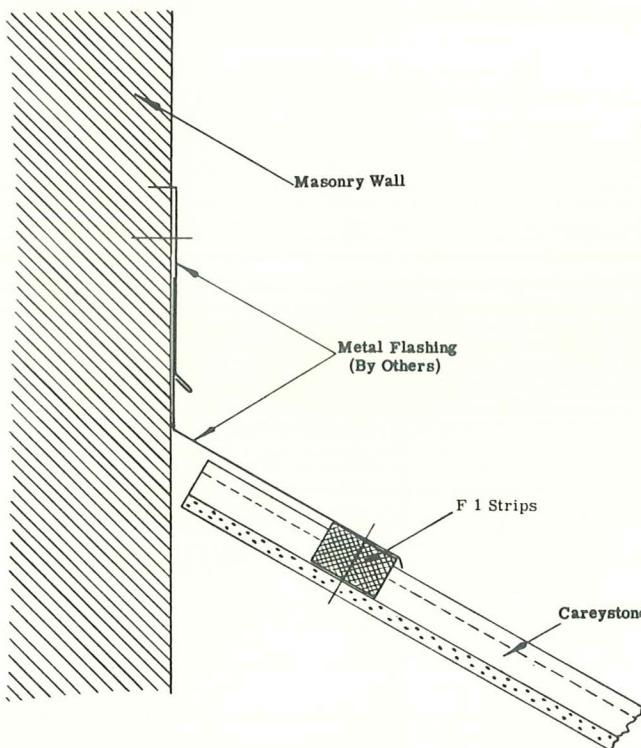
MASONRY WALL TO CAREYSTONE ROOFING DETAILS



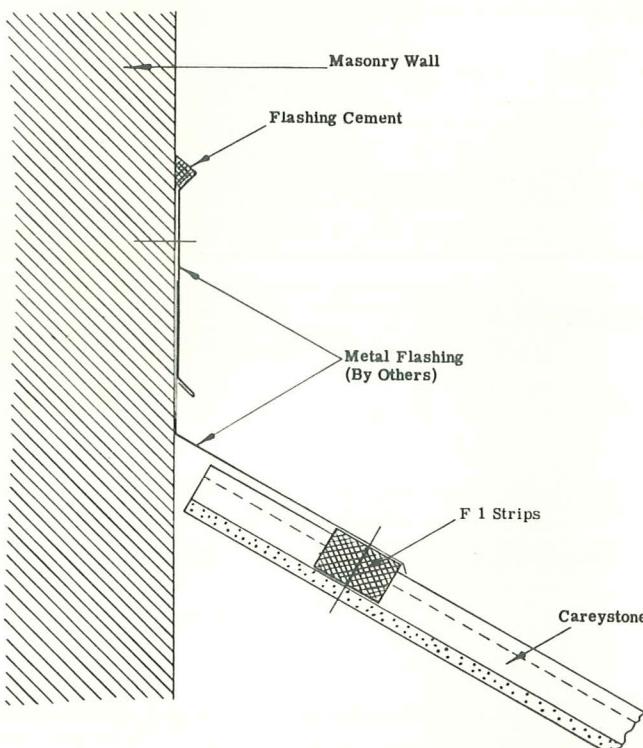
MASONRY WALL TO CAREYSTONE ROOFING



MASONRY WALL TO CAREYSTONE ROOFING



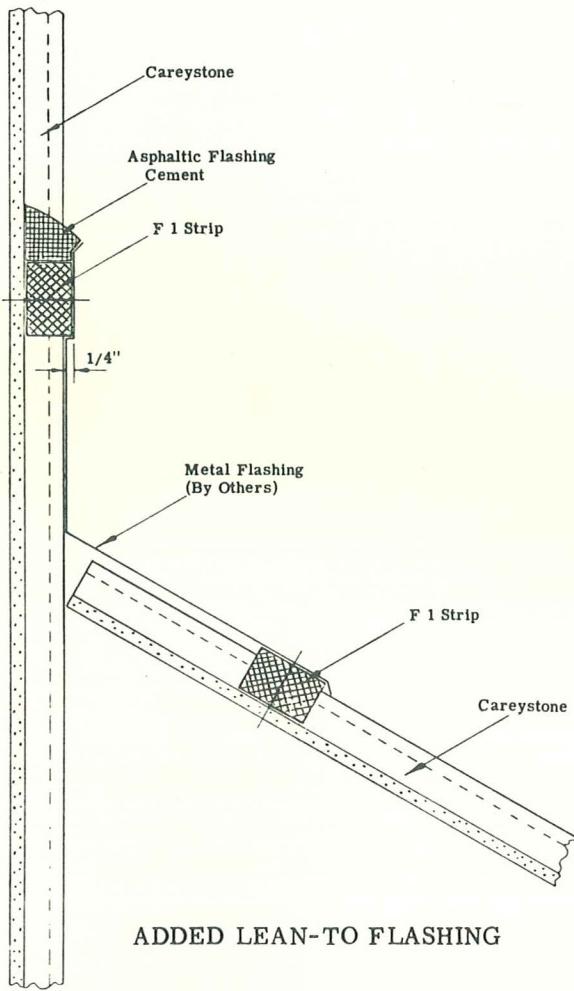
MASONRY WALL TO CAREYSTONE ROOFING



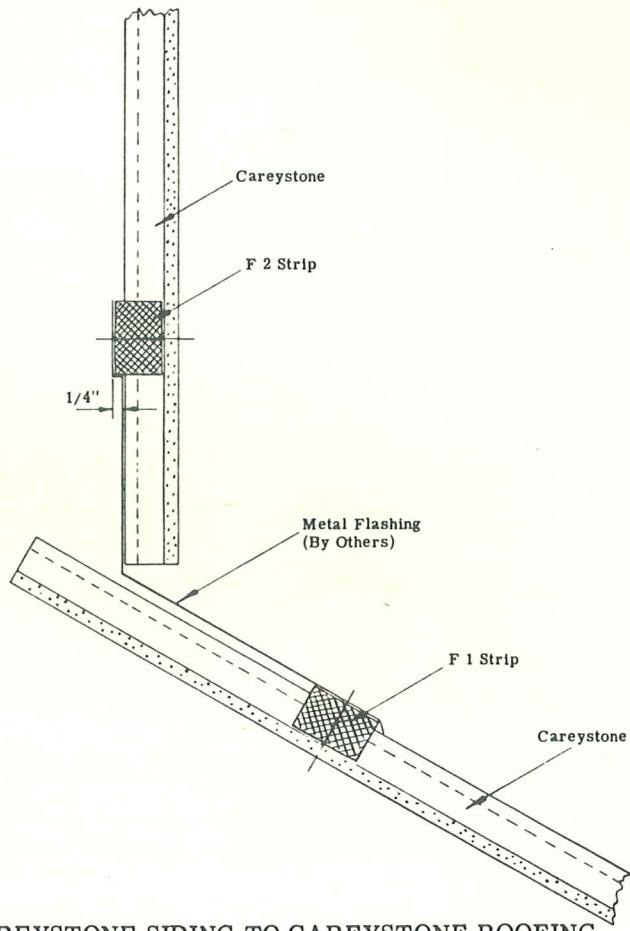
MASONRY WALL TO CAREYSTONE ROOFING

Copper, lead, stainless steel, monel or galvanized iron
is ordinarily used for flashing Careystone Corrugated.

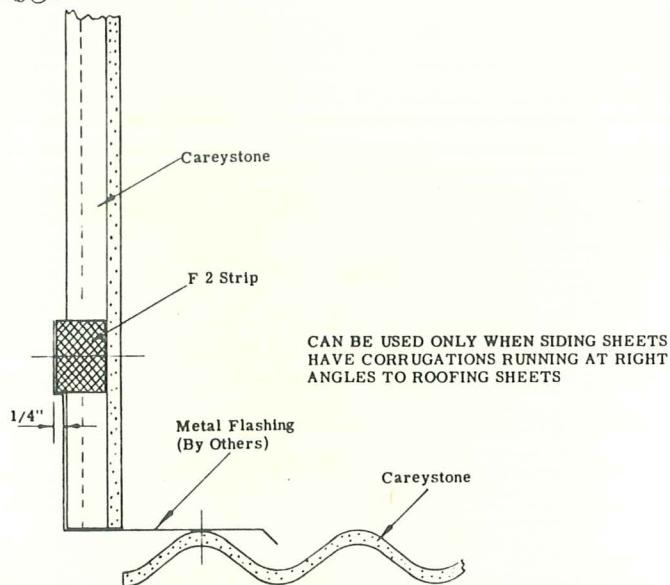
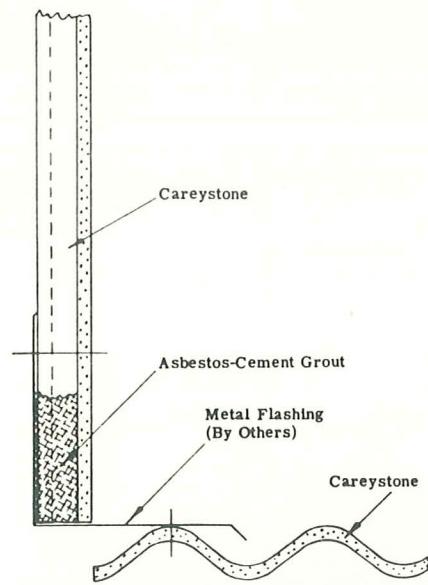
CAREYSTONE SIDE WALL TO CAREYSTONE ROOFING



ADDED LEAN-TO FLASHING

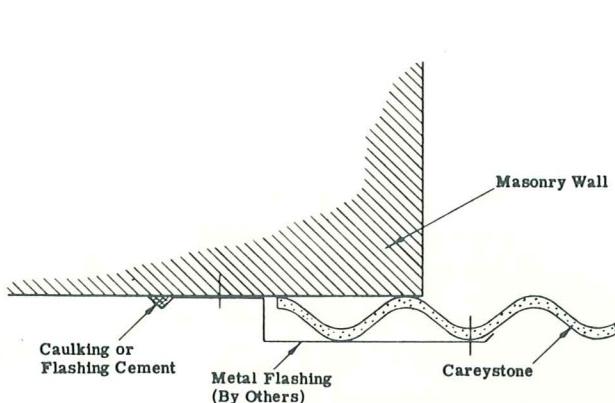


CAREYSTONE SIDING TO CAREYSTONE ROOFING

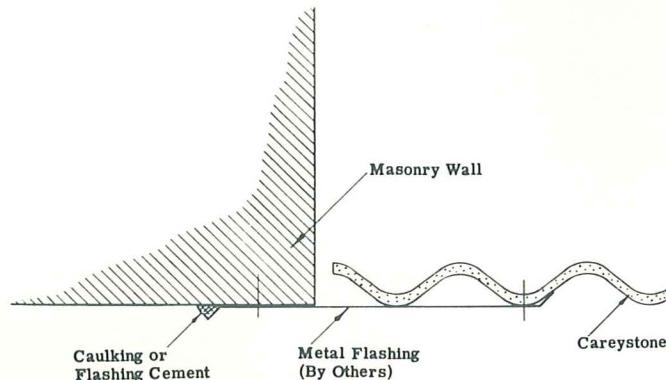
CAREYSTONE SIDING
TO CAREYSTONE ROOFINGCAREYSTONE SIDING
TO CAREYSTONE ROOFING

Copper, lead, stainless steel, monel or galvanized iron is ordinarily used for flashing Careystone Corrugated.

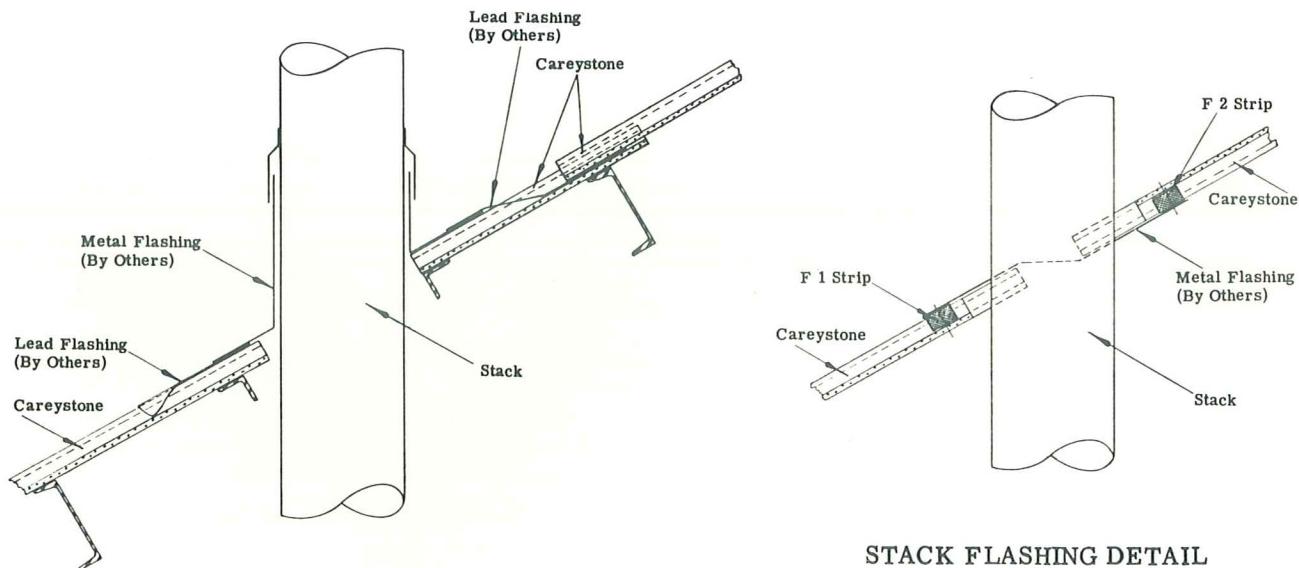
MASONRY WALL TO CAREYSTONE WALL AND STACK DETAILS



MASONRY WALL
TO CAREYSTONE FLASHING DETAIL



MASONRY WALL
TO CAREYSTONE FLASHING DETAIL

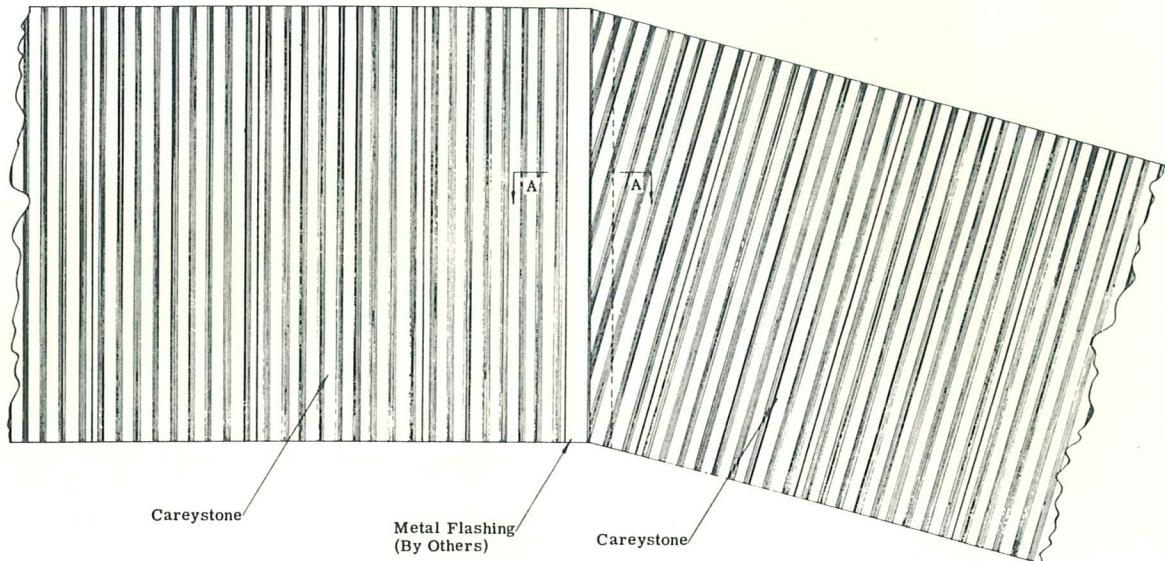


STACK FLASHING DETAIL

STACK FLASHING DETAIL

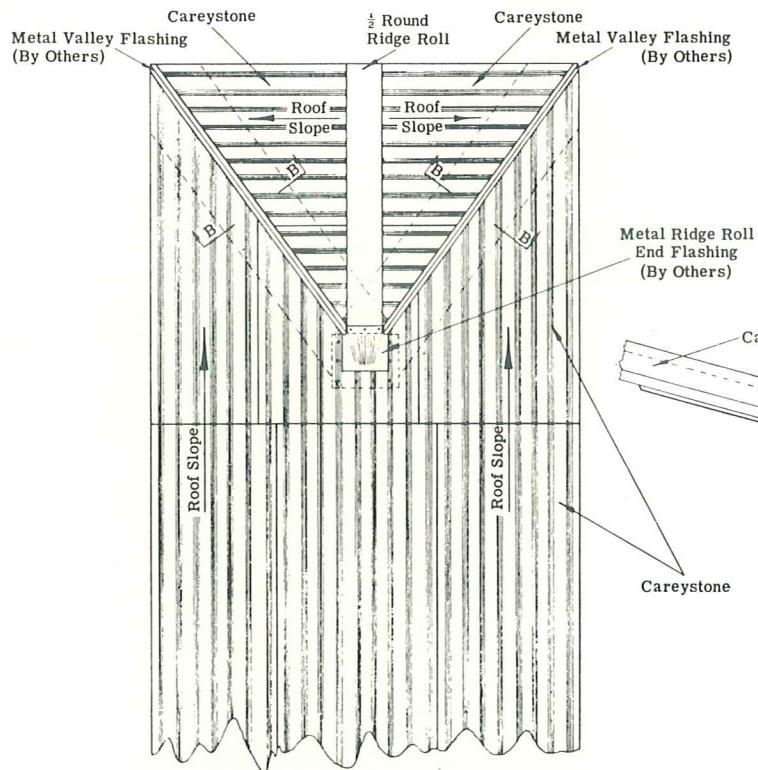
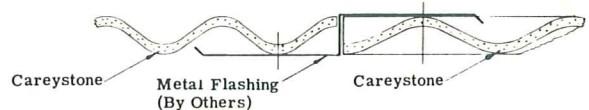
Copper, lead, stainless steel, monel or galvanized iron is ordinarily used for flashing Careystone Corrugated.

CAREYSTONE WALL JOINT AND VALLEY DETAILS

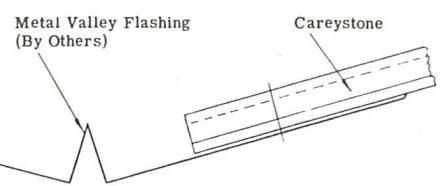


SIDE ELEVATION OF CONVEYOR BRIDGE

(HAVING CAREYSTONE SHEETS WITH CORRUGATIONS
RUNNING AT RIGHT ANGLES TO ROOF LINE)



SECTION A A

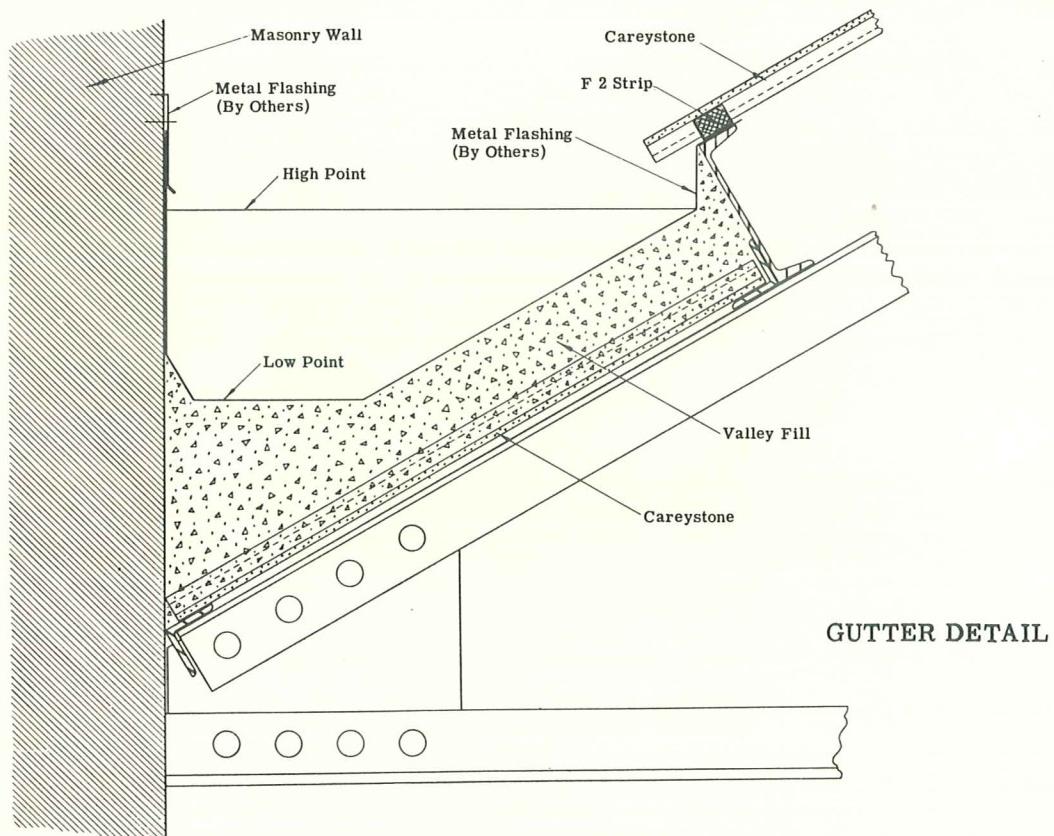
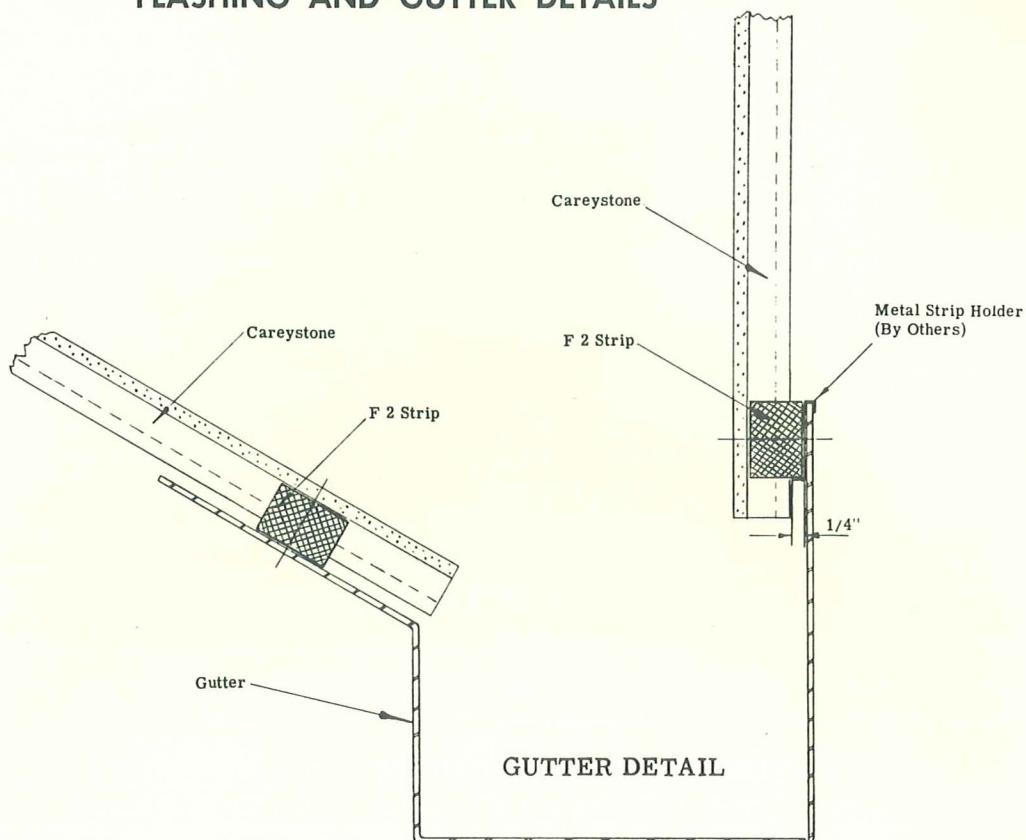


SECTION B B
(VALLEY)

PLAN VIEW OF CONVEYOR BRIDGE ROOF

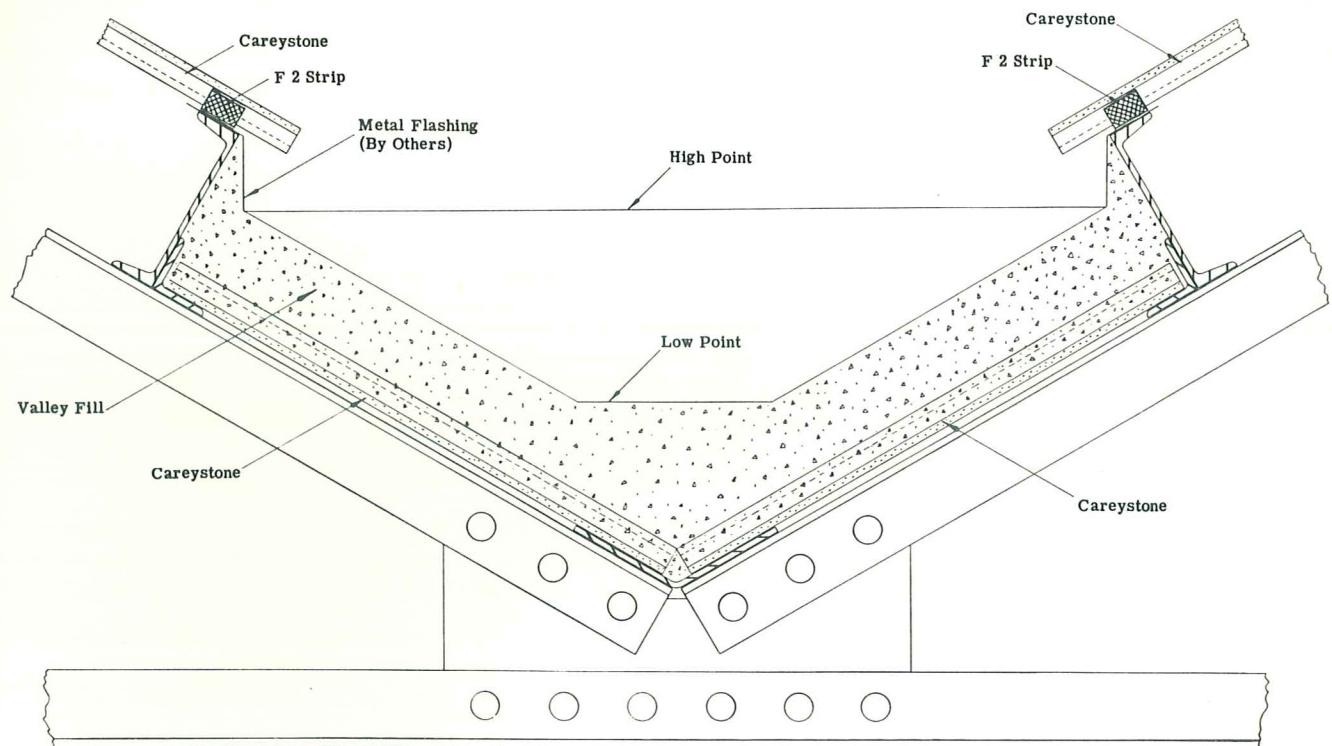
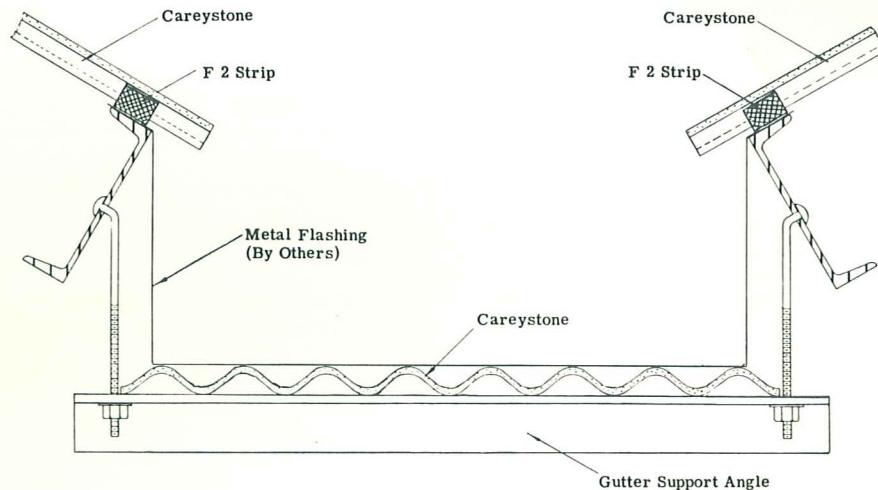
Copper, lead, stainless steel, monel or galvanized iron
is ordinarily used for flashing Careystone Corrugated.

FLASHING AND GUTTER DETAILS



Copper, lead, stainless steel, monel or galvanized iron is ordinarily used for flashing Careystone Corrugated.

FLASHING VALLEY AND GUTTER DETAILS



Copper, lead, stainless steel, monel or galvanized iron is ordinarily used for flashing Careystone Corrugated.

SUGGESTED SPECIFICATIONS

All roofing and siding shall be of Careystone 4.2 Corrugated Asbestos-Cement, weighing approximately 4 lb. per square foot. All sheets to be 42" wide.

Sheets to have an approximate thickness of 3/8", averaging slightly over 3/8" at the crests and vales and 11/32" at the flanges.

Sheets shall be manufactured solely from asbestos fibres and Portland cement and shall be rigid, true and free from all defects. All edges and ends of sheets to be smooth. The top surface of the sheets to be comparatively smooth.

Ridge roll, corner roll and louver blades to be of same Asbestos-Cement material.

Corrugated Asbestos-Cement sheets shall be erected by the _____ method as shown in The Philip

Carey Manufacturing Co. Careystone Corrugated Manual identified as Method No. _____. (Method to be filled in as desired).

Materials to be secured by The _____. Method of fastening as shown in The Philip Carey Manufacturing Company Careystone Corrugated Manual identified as type No. _____. (Type of fastener to be filled in as desired.)

Asphalt filler strips to be furnished for all door and sash heads, sash sills, eave lines, curb lines, etc. to assure weather tight building.

Prior to making shipment of the Careystone sheets and accessories, detail layout drawings of the complete job showing lengths of sheets, type of fasteners, etc. must be submitted for customer's approval.

SUGGESTIONS TO USERS

Careystone Corrugated Asbestos-Cement Roofing or Siding requires no paint, but may be painted for decorative purposes or to paint the company name on a building. Because of its long-wearing qualities and attractive gray-white appearance, Careystone requires no painting or maintenance.

Avoid traffic on corrugated roofs as the sheets may be slippery. Some damage may be done to the sheets or fasteners that may result in leaks. If traffic must be maintained for periodic checking of equipment located on the roof, washing windows, cleaning out blowers, etc., then a permanent wood or steel catwalk should be constructed to those areas.

Don't employ the use of salt, acids, or any other chemical to remove ice or snow from roofing. It may bring about a chemical re-action on the fasteners and cause leaks.

For remodeling, extending buildings, installation of large equipment, etc., entire areas can be removed and if sheets are removed they can be re-applied in the same area or reused in new areas. This makes an ideal material for use as temporary ends and partitions where changes of locations may be desired at a later date. Careystone does not wear out; it lasts indefinitely.

SHEETS PER COURSE (42" WIDE SHEETS)

Applied with one corrugation side lap--

Multiply the length of the course in feet by the unit .3175 and rounding out to the next whole number. This total will give the number of sheets required per course.

Applied with butt side joints--

Multiply the length of the course in feet by the unit .2857 and rounding out to the next whole number. This will give the number of sheets required per course.

When ordering sheets, about 2% of the total quantity should be included to take care of breakage and mis-cutting. These extra sheets should be ordered in the longest lengths on the job so that they can be cut to any required size.

ENCLOSURE STRIPS

Add up the total number of lineal feet of areas where filler strips are to be used. Strips are ordered by the number of lineal feet required. If the number of pieces is to be determined, for F1 and F2 strips multiply the total required for each type by the unit .3175 and rounding out to next whole number. This will give the number of pieces of each type required.

For F1 and F2 strips, if the number of pieces are known the amount of lineal footage can be arrived at by multiplying the number of pieces by the unit 3.15.

To determine the number of pieces of F4 strips required, multiply the total lineal footage by .2857 and rounding out to the next whole number.

HALF ROUND RIDGE ROLL

Multiply the length of the ridge in feet by the unit .125 and round out to the next whole number. This number is the quantity of 8'-0" lengths required. The number of pieces required can also be determined by dividing the length by eight and rounding out to the next whole number. For each 8' section of half round ridge add one ridge roll batten, four galvanized ridge toggles, four bolt assemblies 5" long, two bolt assemblies 1-1/2" long and 5-1/4 pieces F3 strips.

ADJUSTABLE PITCH WING RIDGE ROLL

To determine the number of double sections of adjustable pitch ridge required, multiply the length to be covered in feet by the unit .2727 and rounding out to the next whole number. This number is the total of 4'-0" long double sections required. For each 4' double section of adjustable pitch ridge roll, add four bolt assemblies 3" long, four pounds asbestos cement grout plus two extra bolt assemblies 3" long for each area to be covered.

CORNER ROLL — OUTSIDE TYPE**OR INSIDE TYPE**

Each type of corner roll must be calculated separately so that the correct amounts of the proper types are furnished. The number of 8'-0" pieces of either type required is determined by multiplying the length to be covered in feet by the unit .1304 and rounding out to the next whole number. For each 8'-0" piece of corner roll, add eight bolt assemblies 3" long, plus two extra bolt assemblies 3" long for each area to be covered.

FASTENERS

Figure two fastener assemblies per sheet for each purlin or girt. Add one extra fastener assembly per sheet per purlin or girt at eave and ridge purlins, at topmost and bottom girts on siding, over doors, at sash head and sill, and at the tops and bottoms of all openings.

For seam bolts (required on roofing only) figure one seam bolt assembly per sheet between each purlin.

It is good policy and recommended that three to five percent be added to the actual quantities or that the actual quantities of each accessory item be rounded out to the next multiple of 25 to take care of any loss or waste in the field.

CAREY BLACK PUTTY

Carey Black Putty for side and end laps of roofing (regardless of the pitch of the roof) should be figured at requiring ten lb. of Black Putty for each 150 lineal ft. of side and end laps. If figuring the requirements on the net area basis, figure four lb. of Black Putty per net square of roofing area.

Rope Type Putty should be figured on basis of lineal feet required.

CAREY GRAY ROOF PUTTY

Carey Gray Roof Putty used over overhead bolts and washers should be figured on requiring ten lb. of Gray Putty for each 300 bolt heads. When caulking of corrugated sheets is specified, the quantity of Gray Putty required will vary in direct proportion with the size of the void to be caulked. The quantity of Gray Putty required will vary from one quarter lb. to one lb. of Gray Putty per lineal ft.

GROUT

Asbestos-Cement Grout required should be figured on the basis of one lb. of Grout per lineal ft. for filling one corrugation going with the corrugation and half lb. of Grout per lineal ft. going across the corrugations.

TABLE OF QUANTITIES

1 to 50 Feet

Length To Be Covered In Feet	Corrugated Sheets Per Course		Half Round Ridge Roll 8'-0" Long No. of Pieces	Adj. Pitch Ridge Roll 4'-0" Long No. of Double Sections	Corner Roll Outside or Inside 8'-0" Long No. of Pieces
	1 Corr. Side Lap No. of Sheets	No Side Lap No. of Sheets			
1	1	1	1	1	1
2	1	1	1	1	1
3	1	1	1	1	1
4	2	2	1	1	1
5	2	2	1	2	1
6	2	2	1	2	1
7	3	2	1	2	1
8	3	3	1	3	1
9	3	3	2	3	2
10	4	3	2	3	2
11	4	4	2	3	2
12	4	4	2	4	2
13	5	4	2	4	2
14	5	4	2	4	2
15	5	5	2	5	2
16	5	5	2	5	3
17	6	5	3	5	3
18	6	6	3	5	3
19	6	6	3	6	3
20	7	6	3	6	3
21	7	6	3	6	3
22	7	7	3	6	3
23	8	7	3	7	3
24	8	7	3	7	4
25	8	8	4	7	4
26	9	8	4	8	4
27	9	8	4	8	4
28	9	8	4	8	4
29	10	9	4	8	4
30	10	9	4	9	4
31	10	9	4	9	5
32	11	10	4	9	5
33	11	10	5	9	5
34	11	10	5	10	5
35	12	10	5	10	5
36	12	11	5	10	5
37	12	11	5	11	5
38	12	11	5	11	5
39	13	12	5	11	6
40	13	12	5	11	6
41	13	12	6	12	6
42	14	12	6	12	6
43	14	13	6	12	6
44	14	13	6	12	6
45	15	13	6	13	6
46	15	14	6	13	6
47	15	14	6	13	7
48	16	14	6	14	7
49	16	14	7	14	7
50	16	15	7	14	7

TABLE OF QUANTITIES

51 to 100 Feet

Length To Be Covered In Feet	Corrugated Sheets Per Course		Half Round Ridge Roll 8'-0" Long No. of Pieces	Adj. Pitch Ridge Roll 4'-0" Long No. of Double Sections	Corner Roll Outside or Inside 8'-0" Long No. of Pieces
	1 Corr. Side Lap No. of Sheets	No Side Lap No. of Sheets			
51	17	15	7	14	7
52	17	15	7	15	7
53	17	16	7	15	7
54	18	16	7	15	8
55	18	16	7	15	8
56	18	16	7	16	8
57	19	17	8	16	8
58	19	17	8	16	8
59	19	17	8	17	8
60	19	18	8	17	8
61	20	18	8	17	8
62	20	18	8	17	9
63	20	18	8	18	9
64	21	19	8	18	9
65	21	19	9	18	9
66	21	19	9	18	9
67	22	20	9	19	9
68	22	20	9	19	9
69	22	20	9	19	9
70	23	20	9	20	10
71	23	21	9	20	10
72	23	21	9	20	10
73	24	21	10	20	10
74	24	22	10	21	10
75	24	22	10	21	10
76	25	22	10	21	10
77	25	22	10	21	11
78	25	23	10	22	11
79	25	23	10	22	11
80	26	23	10	22	11
81	26	24	11	23	11
82	26	24	11	23	11
83	27	24	11	23	11
84	27	24	11	23	11
85	27	25	11	24	12
86	28	25	11	24	12
87	28	25	11	24	12
88	28	26	11	24	12
89	29	26	12	25	12
90	29	26	12	25	12
91	29	26	12	25	12
92	30	27	12	26	12
93	30	27	12	26	13
94	30	27	12	26	13
95	31	28	12	26	13
96	31	28	12	27	13
97	31	28	13	27	13
98	31	28	13	27	13
99	32	29	13	27	13
100	32	29	13	28	14

TABLE OF QUANTITIES

101 to 150 Feet

Length To Be Covered In Feet	Corrugated Sheets Per Course		Half Round Ridge Roll 8'-0" Long No. of Pieces	Adj. Pitch Ridge Roll 4'-0" Long No. of Double Sections	Corner Roll Outside or Inside 8'-0" Long No. of Pieces
	1 Corr. Side Lap No. of Sheets	No Side Lap No. of Sheets			
101	32	29	13	28	14
102	33	30	13	28	14
103	33	30	13	29	14
104	33	30	13	29	14
105	34	30	14	29	14
106	34	31	14	29	14
107	34	31	14	30	14
108	35	31	14	30	15
109	35	32	14	30	15
110	35	32	14	30	15
111	36	32	14	31	15
112	36	32	14	31	15
113	36	33	15	31	15
114	37	33	15	32	15
115	37	33	15	32	15
116	37	34	15	32	16
117	38	34	15	32	16
118	38	34	15	33	16
119	38	34	15	33	16
120	38	35	15	33	16
121	39	35	16	33	16
122	39	35	16	34	16
123	39	36	16	34	17
124	40	36	16	34	17
125	40	36	16	35	17
126	40	36	16	35	17
127	41	37	16	35	17
128	41	37	16	35	17
129	41	37	17	36	17
130	42	38	17	36	17
131	42	38	17	36	18
132	42	38	17	36	18
133	43	38	17	37	18
134	43	39	17	37	18
135	43	39	17	37	18
136	44	39	17	38	18
137	44	40	18	38	18
138	44	40	18	38	18
139	45	40	18	38	19
140	45	40	18	39	19
141	45	41	18	39	19
142	45	41	18	39	19
143	46	41	18	39	19
144	46	42	18	40	19
145	46	42	19	40	19
146	47	42	19	40	20
147	47	42	19	41	20
148	47	43	19	41	20
149	48	43	19	41	20
150	48	43	19	41	20

COVERAGE OF 4.2 CARYSTONE SHEETS
(with one Corrugation side lap)

Sheets Per Course	Linear Foot Coverage	Sheets Per Course	Linear Foot Coverage
1	3' 6"	51	161'
2	6' 7-13/16"	52	164' 1-13/16"
3	9' 9-5/8"	53	167' 3-5/8"
4	12' 11-7/16"	54	170' 5-7/16"
5	16' 1-1/4"	55	173' 7-1/4"
6	19' 3"	56	176' 9"
7	22' 4-13/16"	57	179' 10-13/16"
8	25' 6-5/8"	58	183' 5/8"
9	28' 8-7/16"	59	186' 2-7/16"
10	31' 10-1/4"	60	189' 4-1/4"
11	35'	61	192' 6"
12	38' 1-13/16"	62	195' 7-13/16"
13	41' 3-5/8"	63	198' 9-5/8"
14	44' 5-7/16"	64	201' 11-7/16"
15	47' 7-1/4"	65	205' 1-1/4"
16	50' 9"	66	208' 3"
17	53' 10-13/16"	67	211' 4-13/16"
18	57' 5/8"	68	214' 6-5/8"
19	60' 2-7/16"	69	217' 8-7/16"
20	63' 4-1/4"	70	220' 10-1/4"
21	66' 6"	71	224'
22	69' 7-13/16"	72	227' 1-13/16"
23	72' 9-5/8"	73	230' 3-5/8"
24	75' 11-7/16"	74	233' 5-7/16"
25	79' 1-1/4"	75	236' 7-1/4"
26	82' 3"	76	239' 9"
27	85' 4-13/16"	77	242' 10-13/16"
28	88' 6-5/8"	78	246' 5/8"
29	91' 8-7/16"	79	249' 2-7/16"
30	94' 10-1/4"	80	252' 4-1/4"
31	98'	81	255' 6"
32	101' 1-13/16"	82	258' 7-13/16"
33	104' 3-5/8"	83	261' 9-5/8"
34	107' 5-7/16"	84	264' 11-7/16"
35	110' 7-1/4"	85	268' 1-1/4"
36	113' 9"	86	271' 3"
37	116' 10-13/16"	87	274' 4-13/16"
38	120' 5/8"	88	277' 6-5/8"
39	123' 2-7/16"	89	280' 8-7/6"
40	126' 4-1/4"	90	283' 10-1/4"
41	129' 6"	91	287'
42	132' 7-13/16"	92	290' 1-13/16"
43	135' 9-5/8"	93	293' 3-5/8"
44	138' 11-7/16"	94	296' 5-7/16"
45	142' 1-1/4"	95	299' 7-1/4"
46	145' 3"	96	302' 9"
47	148' 4-13/16"	97	305' 10-13/16"
48	151' 6-5/8"	98	309' 5/8"
49	154' 8-7/16"	99	312' 2-7/16"
50	157' 10-1/4"	100	315' 4-1/4"

B - In Bulk
C - In Domestic Crates

TABLE OF WEIGHTS (In pounds)

No. of Pieces	CAREYSTONE											
	3'-0"		4'-0"		5'-0"		6'-0"		7'-0"		8'-0"	
	B	C	B	C	B	C	B	C	B	C	B	C
1	42	47	56	63	70	78	84	94	98	110	112	125
2	84	94	112	126	140	156	168	188	196	220	224	250
3	126	141	168	189	210	234	252	282	294	330	336	375
4	168	188	224	252	280	312	336	376	392	440	448	500
5	210	235	280	315	350	390	420	470	490	550	560	625
6	252	282	336	378	420	468	504	564	588	660	672	750
7	294	329	392	441	490	546	588	658	686	770	784	875
8	336	376	448	504	560	624	672	752	784	880	896	1000
9	378	423	504	567	630	702	756	846	882	990	1008	1125
10	420	470	560	630	700	780	840	940	980	1100	1120	1250
11	462	517	616	693	770	856	924	1034	1078	1210	1232	1375
12	504	564	672	756	840	936	1008	1128	1176	1320	1344	1500
13	546	611	728	819	910	1014	1092	1222	1274	1430	1456	1625
14	588	658	784	882	980	1092	1176	1316	1372	1540	1568	1750
15	630	705	840	945	1050	1170	1260	1410	1470	1650	1680	1875
16	672	752	896	1008	1120	1248	1344	1504	1568	1760	1792	2000
17	714	799	952	1071	1290	1326	1428	1598	1666	1870	1904	2125
18	756	846	1008	1134	1260	1404	1512	1692	1764	1980	2016	2250
19	798	893	1064	1197	1336	1482	1596	1786	1862	2090	2128	2375
20	840	940	1120	1260	1400	1560	1680	1880	1960	2200	2240	2500
21	882	987	1176	1323	1470	1638	1764	1974	2058	2310	2352	2625
22	924	1034	1232	1386	1540	1716	1848	2068	2156	2420	2464	2750
23	966	1081	1288	1449	1610	1794	1932	2162	2254	2530	2576	2875
24	1008	1128	1344	1512	1680	1872	2016	2256	2352	2640	2688	3000
25	1050	1175	1400	1575	1750	1950	2100	2350	2450	2750	2800	3125
26	1092	1222	1456	1638	1820	2028	2184	2444	2548	2860	2912	3250
27	1134	1269	1512	1701	1890	2106	2268	2538	2646	2970	3024	3375
28	1176	1316	1568	1764	1960	2184	2352	2632	2744	3080	3136	3500
29	1218	1363	1624	1827	2030	2262	2436	2726	2842	3190	3248	3625
30	1260	1410	1680	1890	2100	2340	2520	2820	2940	3300	3360	3750
31	1302	1475	1736	1953	2170	2418	2604	2914	3038	3410	3472	3875
32	1344	1504	1792	2016	2240	2496	2688	3008	3136	3520	3584	4000
33	1386	1551	1848	2079	2310	2574	2772	3102	3234	3630	3696	4125
34	1428	1598	1904	2142	2380	2652	2856	3196	3332	3740	3808	4250
35	1470	1645	1960	2205	2450	2730	2940	3290	3430	3850	3920	4375
36	1512	1692	2016	2268	2520	2808	3024	3384	3528	3960	4032	4500
37	1554	1739	2072	2331	2590	2886	3108	3478	3626	4070	4144	4625
38	1596	1786	2128	2394	2660	2964	3192	3572	3724	4180	4256	4750
39	1638	1833	2184	2457	2730	3042	3276	3666	3822	4290	4368	4875
40	1680	1880	2240	2520	2800	3120	3360	3760	3920	4400	4480	5000
41	1722	1927	2296	2583	2870	3198	3440	3854	4018	4510	4592	5125
42	1764	1974	2352	2646	2940	3276	3528	3948	4116	4620	4704	5250
43	1806	2021	2408	2709	3010	3354	3621	4042	4214	4730	4816	5375
44	1848	2068	2464	2772	3080	3432	3696	4136	4312	4840	4928	5500
45	1890	2115	2520	2835	3150	3510	3780	4230	4410	4950	5040	5625
46	1932	2162	2576	2898	3220	3588	3864	4324	4508	5060	5152	5750
47	1974	2209	2632	2961	3290	3666	3948	4418	4606	5170	5264	5875
48	2016	2256	2688	3024	3360	3744	4032	4512	4704	5280	5376	6000
49	2058	2303	2744	3087	3430	3822	4116	4606	4802	5390	5488	6125
50	2100	2350	2800	3150	3500	3900	4200	4700	4900	5500	5600	6250
51	2142	2397	2856	3213	3570	3978	4284	4794	4998	5610	5712	6375
52	2184	2440	2812	3276	3640	4056	4368	4888	5096	5720	5824	6500
53	2226	2491	2968	3339	3710	4134	4452	4982	5194	5830	5936	6625
54	2268	2538	3024	3402	3780	4212	4536	5076	5292	5940	6048	6750
55	2310	2585	3080	3465	3850	4290	4620	5170	5390	6050	6160	6875
56	2352	2632	3136	3528	3920	4368	4704	5264	5488	6160	6272	7000
57	2394	2679	3192	3591	3990	4446	4788	5358	5586	6270	6384	7125
58	2436	2726	3248	3654	4060	4524	4872	5452	5684	6380	6496	7250
59	2478	2773	3304	3717	4130	4602	4956	5546	5782	6490	6608	7375
60	2520	2820	3360	3780	4200	4680	5040	5640	5880	6600	6720	7500
61	2562	2867	3416	3843	4270	4758	5124	5734	5978	6710	6832	7625
62	2604	2914	3472	3906	4330	4836	5208	5828	6076	6820	6944	7750
63	2646	2961	3528	3969	4410	4914	5292	5922	6174	6930	7056	7875
64	2688	3008	3584	4032	4430	4992	5376	6016	6272	7040	7168	8000
65	2730	3055	3640	4095	4550	5070	5460	6110	6370	7150	7280	8125
66	2772	3102	3696	4158	4620	5148	5544	6204	6468	7260	7392	8250
67	2814	3149	3752	4221	4690	5226	5628	6298	6566	7370	7504	8375
68	2856	3196	3808	4284	4760	5304	5712	6392	6664	7480	7616	8500
69	2898	3243	3864	4347	4830	5382	5796	6486	6762	7590	7728	8625
70	2940	3290	3920	4410	4900	5460	5880	6580	6860	7700	7840	8750
71	2982	3337	3976	4473	4970	5538	5964	6674	6958	7910	7952	8875
72	3024	3384	4032	4536	5040	5616	6048	6768	7056	7920	8064	9000
73	2066	3431	4088	4599	5110	5694	6132	6862	7154	8030	8176	9125
74	3108	3478	4144	4662	5180	5772	6216	6952	7252	8140	8288	9250
75	3150	3525	4200	4725	5250	5850	6300	7050	7350	8250	8400	9375

(Weights May Vary Slightly on Shipments)

SHEETS

9'-0"		10'-0"		11'-0"		12'-0"		Half Round Ridge Roll 8'-0" Pcs. Incl. Acc.	Corner Roll 8'-0" Pcs. Incl. Acc.	No. of Pieces
B	C	B	C	B	C	B	C			
126	141	140	157	154	172	168	188	80	24	1
252	282	280	314	308	344	336	376	160	48	2
378	423	420	471	462	516	504	564	240	72	3
504	564	560	628	616	688	672	752	320	96	4
630	705	700	785	770	860	840	940	400	120	5
756	846	840	942	924	1032	1008	1128	480	144	6
882	987	980	1099	1078	1204	1176	1316	560	168	7
1008	1128	1120	1256	1232	1376	1344	1504	640	192	8
1134	1269	1260	1413	1386	1548	1512	1692	720	216	9
1260	1410	1400	1570	1540	1720	1680	1880	800	240	10
1386	1551	1540	1727	1694	1892	1848	2068	880	264	11
1512	1692	1680	1884	1848	2064	2016	2256	960	288	12
1638	1833	1820	2041	2002	2236	2184	2444	1040	312	13
1764	1974	1960	2198	2156	2408	2352	2632	1120	336	14
1890	2115	2100	2355	2310	2580	2520	2820	1200	360	15
2016	2256	2240	2512	2464	2752	2688	3008	1280	384	16
2142	2397	2380	2669	2618	2924	2856	3196	1360	408	17
2268	2538	2520	2826	2772	3096	3024	3384	1440	432	18
2394	2679	2660	2983	2926	3268	3192	3572	1520	456	19
2520	2820	2800	3140	3080	3440	3360	3760	1600	480	20
2646	2961	2940	3297	3234	3612	3528	3948	1680	504	21
2772	3102	3080	3454	3388	3784	3696	4136	1760	528	22
2898	3243	3220	3611	3542	3956	3864	4324	1840	552	23
3024	3384	3360	3768	3696	4128	4032	4512	1920	576	24
3150	3525	3500	3925	3850	4300	4200	4700	2000	600	25
3276	3666	3640	4082	4004	4472	4368	4888	2080	624	26
3402	3807	3780	4239	4158	4644	4536	5076	2160	648	27
3528	3948	3920	4396	4312	4816	4704	5264	2240	672	28
3654	4089	4060	4553	4466	4988	4872	5452	2320	696	29
3780	4230	4200	4710	4620	5160	5040	5640	2400	720	30
3906	4371	4340	4867	4774	5332	5208	5828	2480	744	31
4032	4512	4480	5024	4928	5504	5376	6016	2560	768	32
4158	4653	4620	5181	5082	5674	5544	6204	2640	792	33
4284	4794	4760	5338	5236	5848	5712	6392	2720	816	34
4410	4935	4900	5495	5390	6020	5880	6580	2800	840	35
4536	5076	5040	5652	5544	6192	6048	6768	2880	864	36
4662	5217	5180	5809	5698	6364	6216	6956	2960	888	37
4788	5358	5320	5966	5852	6536	6384	7144	3040	912	38
4914	5499	5460	6123	6006	6708	6552	7332	3120	936	39
5040	5640	5600	6280	6160	6880	6720	7520	3200	960	40
5166	5781	5740	6437	6314	7052	6888	7708	3280	984	41
5292	5922	5880	6594	6468	7224	7056	7896	3360	1008	42
5418	6063	6020	6751	6622	7396	7224	8084	3440	1032	43
5544	6204	6160	6908	6776	7568	7392	8272	3520	1056	44
5670	6345	6300	7065	6930	7740	7560	8460	3600	1080	45
5796	6486	6440	7222	7084	7912	7728	8648	3680	1104	46
5922	6627	6580	7379	7238	8084	7896	8836	3760	1128	47
6048	6768	6720	7536	7392	8256	8064	9024	3840	1152	48
6174	6909	6860	7693	7546	8428	8232	9212	3920	1176	49
6300	7050	7000	7850	7700	8600	8400	9400	4000	1200	50
6426	7191	7140	8007	7854	8772	8568	9588	4080	1224	51
6552	7332	7280	8164	8008	8944	8736	9776	4160	1248	52
6678	7473	7420	8321	8162	9116	8904	9964	4240	1272	53
6804	7614	7560	8478	8316	9288	9072	10152	4320	1296	54
6930	7755	7700	8635	8470	9460	9240	10340	4400	1320	55
7056	7896	7840	8729	8624	9632	9408	10528	4480	1344	56
7182	8037	7980	8949	8778	9804	9576	10716	4560	1368	57
7308	8178	8120	9106	8932	9976	9744	10904	4640	1392	58
7434	8319	8260	9263	9086	10148	9912	11092	4720	1416	59
7560	8460	8400	9420	9240	10320	10080	11280	4800	1440	60
7686	8601	8540	9577	9394	10492	10248	11468	4880	1464	61
7812	8742	8680	9734	9548	10664	10416	11656	4960	1488	62
7938	8883	8820	9891	9702	10836	10584	11844	5040	1512	63
8064	9024	8960	10048	9856	11008	10752	12032	5120	1536	64
8190	9165	9100	10205	10010	11180	10920	12220	5200	1560	65
8316	9306	9240	10362	10164	11352	11088	12408	5280	1584	66
8442	9447	9380	10519	10318	11524	11256	12596	5360	1608	67
8568	9588	9520	10676	10472	11696	11424	12784	5440	1632	68
8694	9729	9660	10833	10626	11868	11592	12972	5520	1656	69
8820	9870	9800	10990	10780	12040	11760	13160	5600	1680	70
8946	10011	9940	11147	10934	12212	11928	13348	5680	1704	71
9072	10152	10084	11304	11088	12384	12096	13536	5760	1728	72
9198	10293	10220	11461	11242	12556	12264	13724	5840	1752	73
9324	10434	10360	11618	11396	12728	12432	13912	5920	1776	74
9450	10575	10500	11775	11550	12900	12600	14100	6000	1800	75

CAREY DISTRICT OFFICES

ATLANTA 24, GA.	251 Armour Drive, N.E.
BOSTON, CAMBRIDGE 38, MASS.	22 Moulton Street
CHICAGO, BELLWOOD, ILL.	25th and Warren Avenue
CINCINNATI 15, OHIO	316 S. Wayne Avenue
CLEVELAND 35, OHIO	4515 W. 160th St.
DETROIT 38, MICH.	14420 Livernois Ave.
HOUSTON 8, TEXAS	1400 N. Post Oak Road
INDIANAPOLIS 21, IND.	1432 Kentucky Avenue
LOS ANGELES 31, CALIF.	2672 Lacy St.
MEMPHIS 7, TENN.	1510 Orenda Road
NEW YORK	Smith St. & Victory Bridge, Perth Amboy, N.J.
ST. LOUIS 3, MO.	307 N. Theresa Avenue
SAN FRANCISCO 24, CALIF.	101 Williams Avenue
SEATTLE 4, WASH.	505 Dexter Horton Building
MONTREAL 9, P.Q., CANADA	(The Philip Carey Co., Ltd.) 95 Stinson Blvd., Ville St. Laurent
WASHINGTON, D.C.	421 Swann Ave., Section E, Alexandria, Va.

SUBSIDIARY COMPANIES

General Magnesite & Magnesia Co.	Norristown, Pa.
Quebec Asbestos Corporation, Ltd.	East Broughton Station, Quebec, Canada
The Philip Carey Company, Ltd.	Lennoxville, Quebec, Canada
Carey Canadian Mines, Ltd.	East Broughton Station, Quebec, Canada
The Lehon Company	Bellwood, Ill., Wilmington, Ill. and Memphis, Tenn.

PICTORIAL VIEW OF CAREY PLANTS



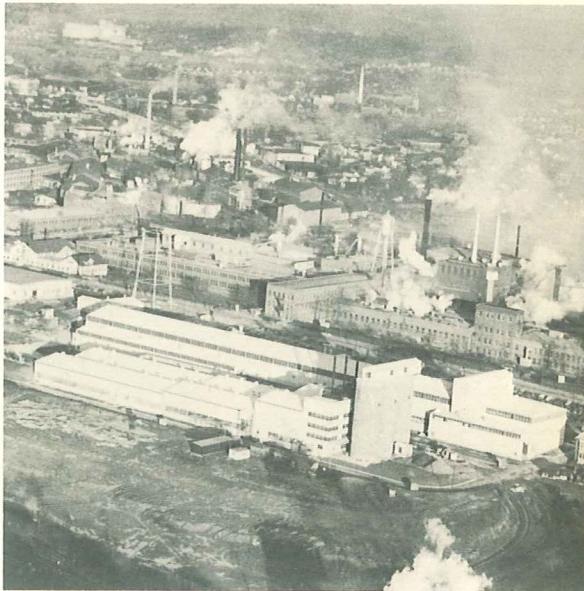
PLYMOUTH MEETING, PENNSYLVANIA



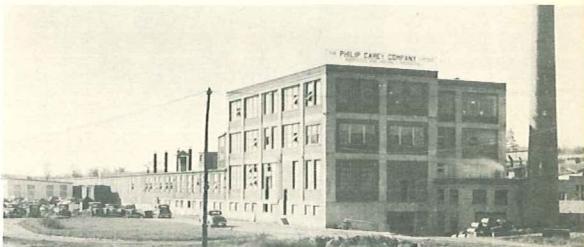
MIDDLETOWN, OHIO



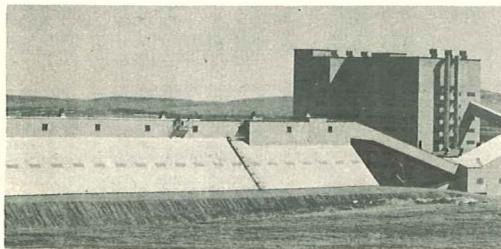
PERTH AMBOY, NEW JERSEY



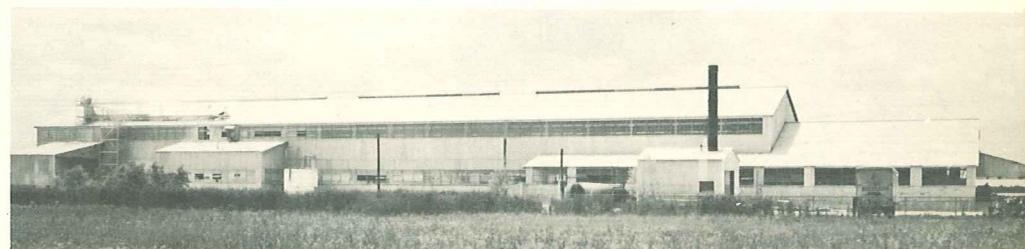
LOCKLAND, OHIO



LENNOXVILLE, P. Q., CANADA

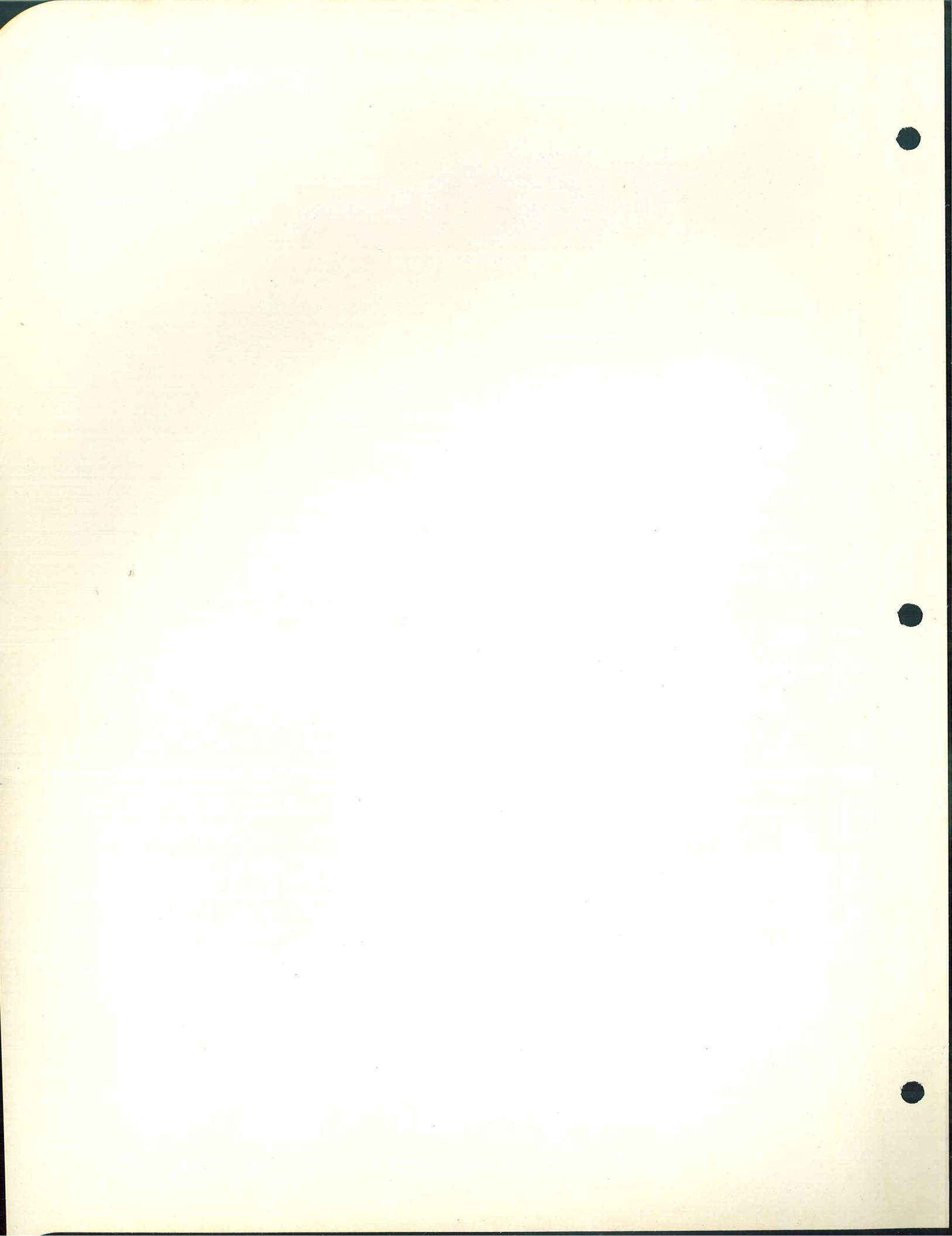


EAST BROUGHTON STA., P. Q., CANADA



HOUSTON, TEXAS

SERVING FARM, HOME AND INDUSTRY SINCE 1873





**The Philip Carey Mfg Co.
Cincinnati 15, Ohio**